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ABSTRACT

Geography curriculum and examinations in European secondary schools are discussed. Intended as a research tool for use by educational planners and curriculum developers, the report compares geography teaching in 18 European countries by analyzing data from 1971 and 1974 questionnaires completed by educational officials of the Council of Europe. Chapter I presents information on the changing status of secondary level geography instruction. Chapter II identifies aims of the new geography as increased understanding of spatial dimensions, interaction of man and environment, stimulation of environmental protection, and increased acceptance of cultural pluralism and other life-styles. Chapter III compares four types of course syllabi--traditional, interdisciplinary, human, and limited--and presents selections of material from various textbooks. Chapter IV identifies the main resources in geography instruction as globes, maps, audiovisual aids, reprographic devices, library facilities, and mathematical aids. Chapter V discusses testing in different countries and compares feedback from various types of evaluation. Chapter VI describes teacher training in European universities. Chapter VII discusses problems in geography instruction and recommends that courses for more academically able students be stressed and that teaching conditions be improved. Tables and diagrams are included. (Author/DB)

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# EUROPEAN CURRICULUM STUDIES

(in the Academic Secondary School)

No. 10 - Geography

by

J W MORRIS BA, FRGS

SO 009 665

Council for Cultural Co-operation
Council of Europe
Strasbourg
1976

The Council for Cultural Co-operation was set up by the Committee of Ministers of the Council of Europe on 1 January 1962 to draw up proposals for the cultural policy of the Council of Europe, to co-ordinate and give effect to the overall cultural programme of the organisation and to allocate the resources of the Cultural Fund. It is assisted by three permanent committees of senior officials: for higher education and research, for general and technical education and for out-of-school education. All the member governments of the Council of Europe, together with Finland, Spain and the Holy See are represented on these bodies (1).

In educational matters, the aim of the Council for Cultural Co-operation (CCC) is to help to create conditions in which the right educational opportunities are available to young Europeans whatever their background or level of academic accomplishment, and to facilitate their adjustment to changing political and social conditions. This entails in particular a greater rationalisation of the complex educational process. Attention is paid to all influences bearing on the acquisition of knowledge, from home television to advanced research; from the organisation of youth centres to the improvement of teacher training. The countries concerned will thereby be able to benefit from the experience of their neighbours in the planning and reform of structures, curricula and methods in all branches of education.

Since 1963 the CCC has been publishing, in English and French, a series of works of general interest entitled "Education in Europe", which records the results of expert studies and intergovernmental investigations conducted within the framework of its programme.

These works are being supplemented by a series of "companion volumes" of a more specialised nature to which the present study belongs.

General Editor:

The Director of Education and of Cultural and Scientific Affairs,
Council of Europe, Strasbourg (France)

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TABLE OF CONTENTS


| | | Page |
|---|---|---|
| List of tables | | ii |
| List of diagrams | | iii |
| Foreword by Dr. W D Halls | | 1 |
| Introduction | | 2 |
| Chapter 1 - | The changing status and scope of geography in secondary schools | 4 |
| Chapter 2 - | Aims and objectives | 13 |
| Chapter 3 - | Geography syllabuses | 37 |
| Chapter 4 - | Resources and methods | 54 |
| Chapter 5 - | Evaluation | 72 |
| Chapter 6 - | Teacher training | 91 |
| Chapter 7 - | Some problems | 96 |
| Appendix A - | Recommendation of the meeting of geography experts Strasbourg, 7 - 10 December 1971 | 103 |
| Appendix B - | Delegates to the Strasbourg Conference December 1971 | 104 |


o

o o

## LIST OF TABLES


| | | Page |
|---|---|---|
| Table 1 | - Teaching objectives (a): Elements of knowledge ..... | 20 |
| Table 2 | - Teaching objectives (b): Skills and techniques ..... | 26 |
| Table 3 | - Teaching objectives (c): Developing ways of thinking (abilities) ..... | 31 |
| Table 4 | - Teaching objectives (d): Development of attitudes ..... | 35 |
| Table 5 | - Resources for teaching and learning ..... | 56 |
| Table 6 | - Time allocations for geography: and teacher/pupil ratios ..... | 62 |
| Table 7 | - Teaching and learning methods employed ..... | 66 |
| Table 8 | - Evaluation (a). Methods used ..... | 74 |
| Table 9 | - Evaluation (b). Abilities tested (in current examination procedures) in 13 countries ..... | 82 |
| Table 10 | - Training of geography teachers for the upper levels of secondary schools ..... | 93 |
| Table 11 | - Estimated value of geography as: an academic subject; a socially useful subject ..... | 97 |


o

o o

LIST OF DIAGRAMS


Page

Diagram 1 - An ideal model of relationships between the main curriculum elements ..... 11

Diagram 2 - Educational objectives in geography (adapted from N Helburn) ..... 17

Diagram 3 - Weight of importance given to selected objectives in physical and human geography ..... 23

Diagram 4 - Weight of importance given to main areas chosen for regional studies ..... 24

Diagram 5 - Weight of importance given to skills and techniques ..... 28

Diagram 6 - Weight of importance given to developing ways of thinking ..... 32

Diagram 7 - Weight of importance given to the development of attitudes ..... 36

Diagram 8 - Estimated frequency of the availability of the resources for teaching and learning ..... 57

Diagram 9 - National number of hours allocated to geography in the final two years of upper secondary education ..... 63

Diagram 10 - Estimated frequency with which selected methods of teaching and learning are employed ..... 67

Diagram 11 - Evaluation (a). Methods used for evaluation in 15 countries ..... 75

Diagram 12 - Evaluation (b). Degree of importance attached to abilities which are tested in current examination procedures ..... 83


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## FOREWORD

This report on geography is the last in the series of European Curriculum Studies commissioned by the Council of Europe and executed under the auspices of the Oxford/Council of Europe Study for the Evaluation of the Curriculum and Examinations (OCESCE Study). As with previous subject reports, the procedures followed have been concerned with a comparison of the aims and objectives, the content, the teaching methods and resources for learning, and the evaluation of geography, particularly in the field of upper academic secondary education. The staff of the OCESCE Study have been responsible for the gathering together of the documentation, translating where necessary, compiling and processing questionnaires and surveys, undertaking interviews with experts, and abstracting the data so gathered. A number of conference papers were prepared and later submitted to a meeting of geography specialists drawn from a large number of member states of the Council for Cultural Co-operation of the Council of Europe and held in Strasbourg. This meeting enabled further information to be collected.

The collation of the data and the writing of the report were then entrusted to an expert. We were again fortunate in having the services of an acknowledged specialist in the field, Mr John Morris, formerly Staff Inspector for Geography for England and Wales, who has contributed to many conferences organised by the Council of Europe.

Like many other subjects, the teaching of geography has changed radically over the past decade. This report brings out most clearly the nature of those changes. It, therefore, represents the most up-to-date statement of the present status of geographical studies at school level in Western Europe.

This is the last subject study presented under the auspices of the OCESCE Study. As Director of the project since 1964, I should like to thank the many hundreds of colleagues, drawn from a score of countries, and in particular, Mr Gustave Bemtgen and Mr Maitland Stobart of the Division for General and Technical Education of the Council of Europe, for the immense amount of work that they have contributed to the project. It is hoped that the OCESCE Study will thereby, in some small measure, have increased international understanding and co-operation.

Oxford
April 1975

W D HALLS
Director of the OCESCE Study

## INTRODUCTION

This report on geography, like the others in the series to which it belongs, is concerned with curriculum and examinations at the upper academic levels of secondary education. As a comparative study of the state and status of geography teaching in the member states of the Council for Cultural Co-operation of the Council of Europe, it seeks to shed light on the possibilities of harmonisation in the zone immediately preceding entry to higher education. The meeting of experts, which took place at Strasbourg in December 1971, was attended by representatives from all of the CCC's member states except Finland, Iceland, Luxembourg and Malta. In addition to the knowledge and viewpoints revealed by extensive discussion, information was provided in the form of written papers and answers to a questionnaire which was completed by all the states represented and by Finland. Much of this material was subsequently analysed by Mr M J Walker of the Oxford University Department of Educational Studies, who not only acted as one of the joint secretaries of the Strasbourg meeting but also prepared a preliminary report which I have used extensively in this final report. I gratefully acknowledge his valuable contributions.

An examination of the considerable volume of material produced by the meeting revealed that there were still significant gaps in the record, particularly with respect to current syllabuses of work, assessment procedures, and proposed changes in geography teaching. It was thought expedient to fill some of these gaps and to bring the material up to date by means of a second questionnaire which was despatched to member states in the Spring of 1974. Replies were received mainly during the summer, but a few were delayed until September and even later. Ultimately, 13 countries completed the second questionnaire, including Finland, Iceland amd Luxembourg as well as 10 of the countries which were represented at the 1971 meeting. Many countries submitted syllabuses of work, and some contributed examples of examination questions.

A number of tables are included in this report. They incorporate two levels of information. First there is that obtained from the enquiry carried out at the end of 1971. Second there is the more detailed information gained from the second questionnaire which, in a few cases, modified earlier replies to take account of changes which had taken place in the intervening period. Most of the countries not replying to the later questionnaire have made no significant changes, and two - the Federal Republic of Germany and Sweden - have for some years absorbed geography for older students into combined studies of a socio-political nature. The tables are thus not entirely straightforward compilations in which every state has answered every question; but, where necessary, notes of explanation have been added to make it possible to distinguish the source of information used in each table. The accompanying diagrams have also been modified to show that some analyses apply to 16, 17 or 18 countries while others apply to 13 only.

Where appropriate, most of the replies are based on official government sources - for example where there is centralised control over curriculum, syllabuses and examinations. In the case of countries like the Federal Republic of Germany (where conditions may vary from one Land to another), Switzerland (with varying Cantonal arrangements) or the United Kingdom (where there are a number of separate examination Boards and schools exercise a good deal of freedom in curriculum and syllabuses), delegates have provided expert assessments. Expert opinion has also been applied to questions not of fact but of judgement on general educational matters, particularly in defining aims, objectives and teaching methods.

Those responsible for responding to questionnaires were commonly asked to provide assessments on a three-point scale, evaluating many items as "very important", "important" and "not important or not taught". The last class does not, therefore, always indicate the total absence of a particular element, but only its relative lack of importance in geography as it is, at present, taught. A somewhat finer grading based on a five-point scale was used for estimating the frequency of occurrence of resources for teaching and learning.

In the decade which preceded the 1971 conference, which inspired this report, a great deal of work had been carried out under the auspices of the Council of Europe on the harmonisation of geography teaching across the whole of primary and secondary education in general. Four conferences were held between 1961 and 1964 and, in their wake, numerous working parties had been responsible for several publications, of which "Geography Teaching and the Revision of Geography Text-books and Atlases" and "The Teaching of Geography at School level" have provided background material for this report, with its more specialised terms of reference.

In preparing this report, I have thus benefited from the receipt of much raw and processed data and the availability of expert opinion from many quarters. For such imperfections as exist in the presentation and interpretation of this rich store of fact and opinion I must, however, accept sole responsibility.

## CHAPTER 1

## THE CHANGING STATUS AND SCOPE OF GEOGRAPHY IN SECONDARY SCHOOLS

### Geography, process and the spatial dimension

1.1.1 It is possible to conjure up a romantic past in which mankind lived in self-contained communities, each of which needed to know only its own limited territory - its boundaries, the cycle of its seasons and the resources afforded by its land, hills, valleys, streams, rocks, minerals, flora and fauna - to arrive, at worst, at a position of assured survival and, at best, at a state of wealth, comfort and expanding affluence. Whether the generality of mankind ever existed for long periods in such isolated groups is a matter for speculation, but the contemplation of a theoretical model based on this imaginary stage of human occupancy of the earth raises the question "What kind of environmental knowledge would be available to, and needed by, each community?" There would, presumably, be a developing fund of learning about its territory, either codified or overtly expressed, for example, in the form of accepted names to identify features and locations, agreed procedures based on experience for the acquisition and production of food and other goods (including dwelling places and their groupings), recognised routeways for movement, and even attempts to explain phenomena embraced within the territory. No matter how much this knowledge of environment was deepened, it would be circumscribed by the limits of the occupied territory, and, as such, would not constitute a "geography" which, by definition, is concerned with the whole world.

1.1.2 At the beginning of the 20th century, the existence of a few such isolated groups, usually living in sub-Arctic wastes, equatorial forests, or arid lands, were such exceptions to the general run of mankind as to excite wonder and even admiration at the modes, and even the fact, of their survival. These were the few who had largely, but not wholly, evaded the diffusion of knowledge about the varieties of territory and modes of life which has led to the world-wide traffic in people, ideas and goods. Today a poor harvest in China, changes in oil production and prices in the Middle East, a continued failure of rainfall in the Sahele, racial tension in South Africa, industrial unrest in Britain, or the recession of the Arctic ice caps may affect, directly or indirectly and with varying degrees of intensity, the way of life of families living in any city or village in any part of the world. As the earth becomes more densely peopled, communities are concerned not only with the management of their own individual territories but also the management of world-wide territories. They may need to have access to resources that lie outside their own frontiers or to ideas and techniques fashioned elsewhere; they may be subject to externally produced pollutants, issuing from man-made environments of cities or industrial establishments, which are widely spread by air, water and fabricated forms of transport. So the affairs of one community may become the concerns of many or all communities, and the need arises for a world-wide codification of knowledge of environments. Such a codification must be applicable at various scales, ranging from small pieces of territory, no matter how they may be defined, to operative political groupings in the form of single countries or international assemblages, and even to the globe as a whole. This codification of knowledge of the earth as the home of man, its land-forms, climates and oceans, the ways in which man modifies its state, uses its resources, creates his own structures and inter-links its parts constitutes an all-embracing "ideal" geography which is as necessary to the inhabitant of the modern world as the more limited environmental knowledge of a small area would be to the dweller in a hypothetical isolated territory.

1.1.3 Some form of geographical education, which is concerned with the organised study of environments ranging from small localities to the whole world, is thus accepted by all countries as an essential ingredient in the curriculum of all pupils. But there are few philosophers or teachers who would claim for geography the comprehensive sweep of knowledge described above. Some would argue that certain aspects of man's economic, socio-cultural and political activities are more effectively studied through the separate disciplines of economics, sociology, anthropology and politics even at school level. Indeed, some of these subjects have carved out a place in the curriculum of several European countries such as Sweden, the Federal Republic of Germany, the Netherlands, and the United Kingdom. Others pin their faith on interdisciplinary studies, and this is a topic to which we shall return in the next section of this chapter.

1.1.4 Although the need for geographical education is universally accepted, two criticisms are frequently levelled against it:

a. Geography has often been taught in an academic and irrelevant way, and many students would prefer to gain their knowledge of society through the medium of disciplines which are closer to reality.

b. Even when it is interesting, geography has a low utility rating. There are obvious, and often immediate, advantages to be gained from proficiency in the mother tongue, other living languages, mathematics and science; but subjects like history, geography, art and music produce little in the way of saleable assets in the economic market or skills for day-to-day living.

1.1.5 The first argument is one that ought to create disquiet in the ranks of those who are responsible for the kind of geography that is taught in schools. For if teachers fail to communicate a relevant geography, they deprive students of experiencing an important dimension in human affairs. It was argued by Kant that just as history deals with time so geography deals with space, both being distinct dimensions within which all things exist and all events take place. We are not concerned with the philosophical implications for the discipline in institutions of higher learning, but at school level a more practical delineation of geography and the spatial dimension may be appropriate. The life of man is essentially conducted in the thin skin of land, water and air lying within a few kilometres of the earth's surface. The features provided by nature, by man, and by the interaction between nature and man form distributional patterns which are in a constant process of change. In the case of most of the natural phenomena, the pace of change is slow, but, when man intervenes, rapid changes frequently occur.

1.1.6 Generations of geographers have been accustomed to the idea of orderliness or pattern in the realms of physical geography. It is this characteristic of orderliness which makes it possible to create models and classifications, for example, models of glacial, erosional and depositional features, of river valleys, of coastal land-forms, of atmospheric, frontal systems, and classifications of soils, of climates and of mountain systems. The regularity which is observed in physical geography is explained by reference to the physical processes which take place more or less uniformly over large areas of the earth's surface. It is only in the last two or three decades, however, that geographers have concerned themselves with the search for regularities across the whole spectrum of phenomena in human and economic geography. Favourable locations for petrol stations, shoe-shops and banks are the results of interplay between economic and behavioural considerations which operate more or less uniformly over the Westernised world. The spatial relationships between the various zones of urban functions - residence, commerce, industry, shopping, public services and recreation - tend to move towards optimal arrangements which bring a measure of pattern or repetition to the layout of towns and cities. The physical, economic and social factors involved in the siting of a new steelworks, a nuclear power

station or an airport are basically similar in Italy, the Federal Republic of Germany, Japan or the USA. Changes in farming practice, the stages by which industrialisation may be introduced into underdeveloped countries, the evolution of transport systems - each reveals the influence of common factors which lead to similarities in the resultant locations and distributions even though there may be important regional variations. Just as the physical processes lend regularity in the realms of physical geography, so do the economic, social, technological and political processes lead to a great deal of regularity in human and economic geography.

1.1.7 "The earth", writes W Bunge, "is not randomly arranged. Locations of cities, rivers, mountains, political units are not scattered helter-skelter in whimsical disarray. There exists a great deal of spatial order, of sense, on our maps and globes" (1). It is this sense of pattern and spatial order which geography should help pupils to perceive, and this may be achieved by a study of the processes at work in nature and in the conduct of human affairs which make sense of locations, distributions, areas, boundaries and lines of movement. In studying the ways by which man arrives at decisions concerning the management of natural environments and the creation and arrangement of new environments, the students are brought face to face with some of the most important problems that challenge mankind today.

1.1.8 As to the second argument (set forth in Section 1.4.(b) above), it is society as a whole which bears the blame if we distort the values upon which students make judgements regarding the utility of what they choose to learn. It would be of little profit if the pursuit of high productivity, technology and wealth stood between mankind and an awareness of three fundamental challenges which threaten its very existence:

a. There is an urgent need to strike a balance between man's demands on the world environment and the ability of the environment to meet those demands.

b. The size and character of many man-made environments - particularly, great conurbations and industrial areas - endanger the physical, mental, social and political health of many communities.

c. The differences that divide people in wealth, religion, social customs and political allegiances are a potential source of friction and violence when fear and ignorance flourish. Coexistence depends on goodwill which stems from knowledge and understanding.

1.1.9 Geography alone cannot provide the total educational background which will enable, and stimulate, new generations to meet these challenges. But it can contribute significantly towards an understanding of the opportunities and limitations of the global environment and its diverse parts, and of the reasons for the differences that exist between and within communities. It is, moreover, the only subject which seeks to establish, through a study of current locational factors and processes, general frames of reference for both describing and explaining position, distribution and movement on the earth's surface. Increasingly, geographers interpret their function as going beyond the role of description and explanation; the search for pattern and regularity has led them to apply geography to prediction and planning in many problems concerned with the use and organisation of space. "The broad lines of modern geography", wrote Professor J Tricart (2), "are already drawn. They will enable geography to be integrated in the contemporary

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(1) "Theoretical Geography" W Bunge. Gleerups. 1962.

(2) "The Teaching of Geography at University Level". Council of Europe/Harrap 1969.

evolution of modern society and will ensure its future by changing at the same speed as it. It is this geography which must be the subject of basic university teaching. It will provide experts and efficient secondary teachers alike. It will create the conditions of reform in secondary education, which as a result will be fit to train citizens by making them aware of the countless and complex problems involved in spatial development, expansion and the intervention of physico-geographical and human factors in the geographical equilibria and their preservation".

1.1.10 A complementary British view, which acknowledges the work of American and Swedish geographers, partly stemming from German thinkers, is expressed by P Ambrose (1) "Academic disciplines evolve constantly, partly because the natural world and society are themselves evolving. ... A period of rapid evolution in a discipline occurs when a sizeable minority of people within it become dissatisfied either with its intellectual content, or with the value of its contribution to society, or both". The writer goes on to argue the case for, among other things, "a swing from a descriptive regional approach to a space analytical approach" and an increased use of quantitative analysis.

1.1.11 The argument thus far has been concerned with a restatement of the need for geographical education as an important element in the curriculum and, more controversially, with certain changes in the methodology and purpose of geography in the universities which are, inevitably, exerting a downward pressure for change at the secondary school level. It is at the upper end of the secondary school that these changes are most likely to have their initial impact, even though experience in the United Kingdom shows that the lower secondary school is not immune and that reform at the upper level is quickly followed by reform at lower levels.

## The educational dimension

1.2.1 The reassessment of the purpose of geography as a field of study is being paralleled throughout Europe by a reassessment of the general purposes of education. Broadly speaking, this has crystallised into an examination of the relative importance and relationships that exist among three main components in the educational design - pupils, subject matter, and society. Upon administrators and teachers falls the responsibility of interpreting the relative priorities afforded to these three components in the prevailing educational theory. Their interpretation finds practical expression in curricula, syllabuses of work, and teaching methods. Of the six possible sequences of priority in which the components may be arranged, three are of special value in illuminating changes which are taking place at the upper secondary level. The models, like all models, are simplifications and are, therefore, open to the charge of distorting the realities of the educational process. They might be applied to the total educational programme or, as in the case of this report, to the single subject of geography.

Model 1. SUBJECT MATTER ----→ Pupils ----→ society.
Model 2. SOCIETY ----→ Pupils ----→ subject matter.
Model 3. PUPILS ----→ Subject matter ----→ society.

1.2.2 In the first model, it is assumed that geography is a valuable discipline which ought to be communicated to the students who will thereby profit from an association with an organised body of knowledge. The capacities of the students act as a monitoring system, regulating the order of difficulty and the amount of knowledge and ideas which are presented; and the skill of the teacher is applied

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(1) P Ambrose. "Analytical Human Geography" Longmans 1969.
P Ambrose. "School Geography in the Changing Curriculum".

to devising a selection of subject matter, sequence of presentation and appropriate methods to enable the students to cover the programme successfully. Society, it is assumed, will benefit from the presence of citizens who have undergone the training that comes from a well-conceived exposure to the subject of geography. This might be called a subject-centred approach to geography. To judge from textbooks, such an approach has been widely prevalent in Europe until recent years, though it must be recognised that there has not been a complete absence of modifying influences which reflect the special interests or characteristics of individual states. For example, Iceland and Greece have placed special emphasis on geomorphology, the Netherlands on land reclamation and water-control, and countries like France and the United Kingdom on studying certain overseas territories with which special relationships had been established during the period of imperial expansion.

1.2.3 In the second model, it is assumed that society and its needs should exert an overriding claim on the educational programme and that claims made on behalf of traditional subjects should be subservient. Each subject earns its place in the curriculum in terms of the value assigned to it as a support for the society in which it is taught, both in preserving institutions, activities and attitudes deemed to be favourable to the continuance of society, and in providing an educational infrastructure to meet foreseeable change. The values assigned to elements of the curriculum are thus more a matter of political and socio-economic judgement than of academic appraisal. This results in what might be called a society-centred approach to geography. It affects the subject in two ways.

1.2.4 a. First, it influences the total curricular context in which geography (and every other subject) receives an allocation of time, reflecting a hierarchy of values apportioned to each area of the curriculum. Certain countries such as Norway, Sweden and the Netherlands, in which the mother tongue is not widely used for international communication, have a heavy weighting in modern language teaching. Most European countries place great emphasis upon mathematics, science and technology in support of their economic activities. The establishment of such hierarchies of subjects often results in subjects like geography occupying a relatively lowly position. In some countries, geography may be studied in only one of the two final years, or, in countries which regard the last three years as a single terminal phase, in one or two years of the three. For example, in Austria, Cyprus and Greece, it appears in the penultimate year only of the curriculum, in Iceland in the final year only, and in Finland, where it is compulsory for all in the ante-penultimate year, it becomes an option in the penultimate year and disappears in the final year. In Italy, although geography continues in the programmes of students up to 19 years of age in technical and teacher training institutes, it temporarily ceases at 15 years of age in the "lycée scientifique", and 16 years of age in the "lycée gymnase", but appears again for the final year (students aged 18+). In Spain, there is no geography teaching for the older students in the upper secondary school.

1.2.5 There is also a group of countries in which geographical education is subsumed under some form of interdisciplinary combination; this applies to Sweden and Norway where some aspects of geography are embraced in civics and mathematical and physical geography take place in the science/mathematics programme. In the Federal Republic of Germany, geography is no longer a separate subject for older students but is part of the course in "Gemeinschaftskunde" (a course which has a parallel in the final year only in Austria). All of these interdisciplinary courses reflect a well-defined social purpose.

1.2.6 b. The second result of a society-centred approach is shown in the actual syllabuses of geography. A number of countries reported that physical geography was decreasing in importance and social geography increasing. These include Denmark and the Netherlands, and there is a tendency for this to happen in some examination syllabuses in the United Kingdom, but it is, perhaps, in the Netherlands that this trend is most strongly developed.

1.2.7 It is in the teaching of younger children - mainly between six and eleven years of age - that a pupil-centred attitude to education in general is likely to hold sway, for it is at this stage of their development that prevailing educational theory has stressed the importance of children's interests and limitations in the educational process, with a corresponding diminution in the importance attached to conventional subjects (1). Thus, Model 3 may be thought to apply more to primary schools than to the upper secondary schools with which this volume is concerned. There are, however, two ways in which a pupil-centred approach for older students might be considered.

1.2.8 a. In a wholly pupil-dominated curriculum, each student would be free to choose his own programme of work subject only to the limitations inherent in the school's resources, staffing and availability of time. While complete freedom of choice may not be possible, the individualisation of study programmes is gaining acceptance in a number of European countries. It is highly developed in the United Kingdom, Ireland and Sweden, and it is being considered in France as well as other countries. As far as geography is concerned, the result is that it becomes an optional subject chosen by a proportion of students which reflects the interests of the students, the academic status of the subject in gaining entry to institutions of higher education, and to some extent the vocational prospects which it offers in the country concerned. When a country changes from a compulsory programme, or one offering little choice, to an optional programme, a reduction in the number of students continuing with geography may be compensated by a more generous time allowance.

1.2.9 b. As far as the syllabus of work is concerned, each student cannot develop his own version of geography, but there can, at least, be a shift from a syllabus which demands a standardised body of learning for all to one which requires substantial pieces of individual work, as in Belgium, Iceland, the Netherlands and the United Kingdom. Individualised learning is most highly developed in the post-higher course in Scotland. "The student should develop a geographical approach through methods of survey, analysis and synthesis by his work in the field, in the geographical laboratory, in the library and in the tutorial room. Such scholarship in depth should lead towards greater clarity of thought and expression and to sound individual judgement. To achieve this end, there must be a greater concentration on original work through the study of a small area in the field on the one hand and, on the other hand, of an area of importance in a world-wide context". (Extract from the report of the Scottish delegate.) In the final assessment, no fewer than 80% of the marks are allocated to the original work of each student, leaving 20% only for performance on that part of the examination syllabus which is common to all candidates. It should also be noted that the post-higher course refers to an optional final year only and is a recent addition to the Higher Certificate examination which is the normal culmination of upper secondary school courses in Scotland.

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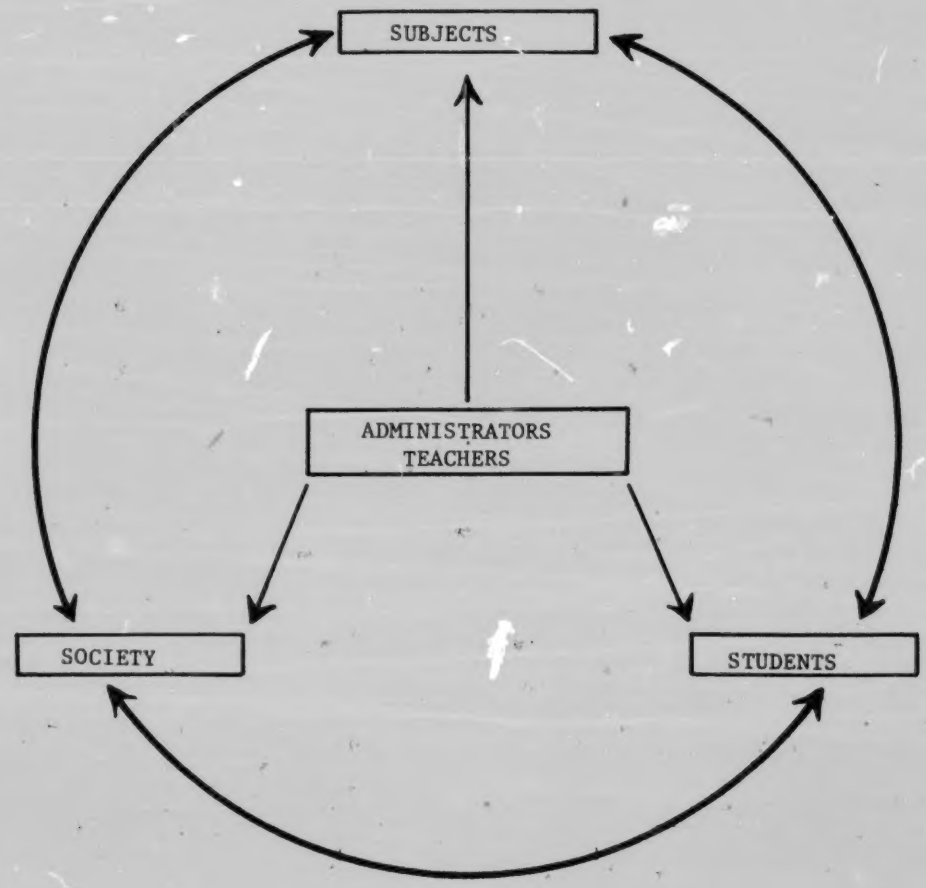
(1) There is some evidence of a modification of this view in certain American writing, eg J S Bruner's "The Process of Education" Harvard: 1960.

1.2.10 The terms "subject-centred", "society-centred" and "pupil-centred" have been described in a way which suggests a polarised view of education, and the examples quoted may be thought to do less than justice to the countries mentioned and to the teachers who have to interpret the syllabuses in the classroom. In an "ideal" model, no single one of the three elements mentioned in Section 2.1 would take precedence over the others. The model would thus take the form illustrated in Diagram 1.

Diagram 1



1.2.11 In curriculum terms, this would imply that geography would be treated neither more nor less favourably in the array of subjects which is available to the student, whether it appeared as a subject in its own right or as a substantial and distinguishable part of an integrated studies programme. In most countries, this would be a matter for decision by administrators in the educational field (and in the United Kingdom by the headmaster of each school), based on their perceptions of the needs of students and of society at large.

1.2.12 In syllabus terms, applied specifically to geography, it would imply that a balance would be achieved among the claims of students, society and the subject. For the students, there would be opportunities for some original work, some degree of choice and training in judgement and skills as well as for acquiring knowledge. The needs of society would be met by promoting good citizenship through the study of real problems and by providing an adequate flow of candidates for vocations in which geographical skills and knowledge are valuable. The needs of the subject would be served by a progressive treatment of some of the central concepts and techniques of geography in an academically coherent framework which would be intellectually satisfying to the students and which would form a suitable basis for advanced studies in institutions of higher education.

1.2.13 Such a balance in the curriculum and in syllabuses can only be attained by compromises among conflicting claims. Since there are no absolute criteria to guide those responsible for the final decisions, there is an unavoidably wide margin of subjectivity in the end products. Some countries appear to give less weight to preserving the integrity of the subject than others, some appear to emphasise the social aspects more than others, and some appear to be more concerned with the personal development of students than others. A comparison of the situation as it exists in the various member states reveals the absence of any European norms at the higher academic levels of secondary education. Geography may be a compulsory subject with a modest time allowance as it is in France, or an option as it is in the United Kingdom where it has a large time allowance (though in both countries proposed changes in the pattern of upper secondary education may render these statements obsolete within the next few years); it may be fragmented as it is in Sweden, or of little or no importance as in Greece and Cyprus.

1.2.14 The evidence upon which this report is based concerning the teaching of geography consists mainly of records of discussions at conferences, syllabuses of work, generalised statements about the state of the subject, a few examples of examination procedures and completed questionnaires. The ultimate test, however, lies in the ways in which teachers carry out their work. To conduct a detailed enquiry into school practices would be a laborious task involving large numbers of visits to schools, and there appear to be no comprehensive reports on professional investigations into the teaching of geography as it is carried out in the schools of the member states, apart from one recently published for England and Wales (1). This report is therefore based upon such written evidence as is available. It reveals the wide variations which exist among countries and also certain large areas of agreement. It also indicates, by referring to recent changes which have taken place, or are projected, that the present position is by no means static.

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(1) "School Geography in the Changing Curriculum". Education Survey 19; Department of Education and Science. HMSO. London, 1974.

## CHAPTER 2

## AIMS AND OBJECTIVES

2.1 Although the terms "aims" and "objectives" are sometimes used interchangeably to denote a wide range of purposes in education, they will in this report be given the specific connotations which have become widely accepted in modern analytical writing. Aims describe the general and non-specific intentions associated with a programme of work. They provide the philosophical context within which the teaching and learning should take place, and if the teacher is fully apprised and perpetually conscious of them they assist him in making decisions about those aspects of geography which should be centrally placed in the teaching and those which should be peripheral. For example, if the aims of geography teaching are expressed mainly in terms of a social purpose such as "to impart an understanding of the different ways in which human societies react to the varieties of natural environments that exist on the earth", then the processes at work in geomorphology and climatology would become peripheral, but the characteristics of natural environments, especially the land-forms and climates, would become central to the teaching. Thus, the teacher dealing with the Sahara would be less concerned with a classification and explanation of types of sand-dunes or the causes or aridity and more with the nature of the desert environment and its effects on nomadism, oasis cultivation, sparse population, poverty and the importance and problems of mineral exploitation and irrigation. On the other hand, if the aims included an element of explanation and comparison of the physical features on the surface of the earth (as in France), the teachers' task would be differently defined, and those aspects of the Sahara meriting little concern in the example quoted above would now become central to the teaching and in no way subordinate to social and economic questions.

2.2 Objectives differ from aims in that they state specifically what is expected of the student in the way of acquisition of knowledge, skills and even attitudes. Their specificity renders them capable of assessment by testing or examination procedures. Thus, if the objectives include an ability to describe certain land-forms and settlement depicted on certain types of large-scale maps, or to understand certain processes associated with vulcanicity, or with rivers, ice and wind as agents of erosion and deposition, then it would be possible to estimate the degree of success achieved by the student during and at the end of the course. In the case of area or regional studies, it is not sufficient merely to name the continents, countries or areas to be studied; there must also be some definition of those aspects which are to be studied and what the student is expected to know about them. Objectives for the course at any particular stage in the school are frequently set out in the form of a detailed scheme of work or an examination syllabus upon which a scheme may be based.

### 2.3.1 Aims

Aims may be stated in such general terms that they apply to the geography course for the whole school. In countries which have centralised control over the programmes of work, it is common to publish the aims as a preamble to the programme. The following examples of aims were provided by members of the conference.

### 2.3.2 Belgium

The geography course endeavours to put pupils into contact with their environment and with the world as a whole; it teaches them to observe, to describe, to establish relations with the characteristic elements of a region.

2.3.3 Denmark

The aims of instruction are to give the pupils an understanding of different environments as they are determined by conditions of nature, economy, technology, historical developments and political systems, to illustrate the interplay between man and the natural conditions and to create a basis for the critical evaluation of the surrounding world.

2.3.4 France

To locate, describe, explain and compare the physical features and the human life-styles on the surface of the earth - such is the role of geography.

2.3.5 The Federal Republic of Germany

Geography ... gives insight into the varying inter-relations of position, natural setting, social and economic conditions and political forces. The pupil experiences the great variety of environments on the earth's surface.

2.3.6 Greece

Geography courses aim to:

i. give the students, as fully as possible, a picture of the earth's surface, as a whole and in its regions, in relation to human life;

ii. demonstrate the influence of natural environment on the life of man and the influence of man on the natural environment in terms of big technical projects;

iii. cultivate the students' appreciation of their national land and country, as well as to stimulate their interest in the maintenance and preservation of the special characteristics which constitute their natural background;

iv. instil in the students the spirit of mutual understanding, assistance and co-operation among nations by offering knowledge about foreign countries and their people;

v. make known to the students the sources of natural wealth of their country, as well as its economic development in relation to other countries, and the importance of economic development in raising the standard of living and the level of civilisation.

2.3.7 Netherlands

The primary objective of geography is to gain an understanding of the distribution, variety and inter-relationships of phenomena in the terrestrial environment.

2.3.8 Norway

The aim is to give students:

i. a review of the earth as a site of human habitation built on the understanding of the various geographical factors in nature and culture;

ii. a more thorough knowledge of the topography of the homeland, natural resources and the economy and also knowledge of map reading and topographic maps.

2.3.9 Switzerland

Instruction in geography imparts knowledge of the different natural areas of the earth and demands understanding of the development and problems of human societies, cultures and economic positions in relation to natural factors.

2.4 A detailed analysis of these broad aims would be neither profitable nor justified. Location and distribution, which are fundamental ideas in geography, are mentioned only by France and the Netherlands, but are implied in most of the statements. A study of the immediate environment or homeland is openly expressed by Belgium, Greece and Norway, but in practice it receives special attention in all the countries. The most commonly recurring aims are those concerned with understanding and knowledge of the interplay between man and the various kinds of natural environments to be found on the earth's surface. Denmark and the Federal Republic of Germany, however, do not confine human reaction to the natural environment alone but, in keeping with trends in modern geography, offer more detailed advice by drawing attention to nature, economy, technology, historical development and political forces or systems in the man-environment complex; some of these factors also appear in the statements from Switzerland and Greece. On the surface, the succinct and penetrating statement from France is strongly subject-orientated, as are those from Belgium and the Netherlands, while a marked social purpose appears in several statements, notably those of Greece and Switzerland which emphasise international understanding and awareness of the problems of human societies. The cultivation of critical evaluation (Denmark) and an interest in "maintenance and preservation" (Greece) suggest the formation of attitudes in the students. Training in the use of maps is mentioned only by Norway. General statements of aims, however, must ultimately be viewed against the background of the conventions and accepted practices which have grown up in the teaching of geography. It may well be that some of the notable omissions in the statements of aims are so obviously integrated into teaching as not to require separate mention. It is, therefore, necessary to turn to an analysis of objectives, as reported by members of the 1971 meeting, to arrive at a more reliable estimate of the purposes of geography teaching.

2.5.1 Objectives

In recent years, there has been a growing interest in compiling taxonomies of geographical objectives in education, based on the propositions:

a. that geography is concerned not only with the acquisition of knowledge but also with the cultivation of abilities, skills and attitudes; and,

B. that each of these areas of concern can be stated in fairly general and increasing specific terms depending on the nature and amount of control which is to be exercised over the teaching and learning. The methods of analysis are mainly derived from American sources and, in particular, from the work of B S Bloom, D R Kratwohl and B B Hasia. The application of the methods to geography has been attempted by a number of writers, including N Helburn. The analysis, which is expressed diagrammatically in Diagram 2, includes enough specificity to demonstrate the main features of the scheme, but it stops short of attempting the most detailed list of objectives since this admits of a wide range of choices.

2.5.2 The documentation provided at the 1971 meeting and subsequent to it suggests that it is rare in Europe to find anything approaching such a highly structured format. Yet, in those countries where the subject of geography and its role in education are both undergoing a period of considerable revision, it is possible that a more detailed prescription of aims and objectives than has previously been thought to be necessary may prove helpful to the teaching body. One example was reported by the Scottish delegate who provided a working paper prepared by an official committee for its own use. It must be stated that the paper represents a stage in the evolution of thinking and that any final publication would probably incorporate a certain amount of re-interpretation of aims into behavioural objectives. For this reason, the aims have been included as well as the stated objectives. (For the purposes of this volume, the paper has been slightly edited.)

2.5.3 Aims

a. To study the spatial distribution of phenomena on the earth's surface and their inter-relationships.

b. To study the interaction of man and his environment, both physical and man-made.

c. To foster curiosity about the world, its varied habitats, environments and communities.

d. To encourage acceptance, tolerance and understanding of different ways of life, different customs and mores.

e. To stimulate a sense of commitment to conserving and developing the earth's surface towards the welfare and happiness of its inhabitants.

Diagram 2

## EDUCATIONAL OBJECTIVES IN GEOGRAPHY (adapted from N Helburn)

| General → | | more specific → | most specific |
|---|---|---|---|
| Knowledge (Cognitive) | Regional | Homeland<br>Europe → EEC<br>USSR<br>North America → USA<br>Latin America<br>Asia<br>Africa<br>Oceania | Specified areas, countries or aspects |
| | Human | Population: density: culture groups etc<br>Settlement - urban, rural<br>Agriculture<br>Industry<br>Communications<br>Trade<br>(stages and levels of development) | Specified topics and depths of study |
| | Physical | Geomorphology<br>Climatology<br>Biogeography<br>(Description, Explanation) | Specified selection of subject matter |
| Abilities (Cognitive) | Memorisation and recall | Knowledge from lectures, books, maps, films etc | Specified details in relation to field work, regional, physical and human studies |
| | Comprehension | Specialised vocabulary: translating information from one form to another | |
| | Analysis | Use of deductive reasoning: selecting data for problem solving | |
| | Synthesis | Formulating hypothesis: establishing relationships in physical/human geography | |
| | Application | Identifying and solving problems | |
| | Evaluation | Assessing quality of evidence | |
| Values and Attitudes (Affective) | Environment<br>Man | Enjoyment of landscape<br>Concern for conservation<br>Concern for international understanding<br>Concern for poverty and famine | Specified topics designed to promote values and attitudes |
| Motor Skills | Manipulative skills with | Maps<br>Photographs and film<br>Diagrams<br>Instruments | Details of practical work to establish skills |

(some examples)

Objectives

f. Knowledge of:

i. specific locations, eg Balfron (a Scottish village), Glasgow, Europe;

ii. terminology, eg village, city, continent;

iii. classifications, eg nucleated, conurbation;

iv. conventions, eg map symbols, colour-layering;

v. distributions, eg world population;

vi. methods, eg observation, recording, mapping;

vii. basic themes, eg areal association, functional region, spatial hierarchy.

g. Ability to observe and record landscape features.

h. Ability to use (i) maps and atlases; (ii) simple instruments eg compass, rain-gauge.

i. Ability to process geographical data by statistical and cartographical methods.

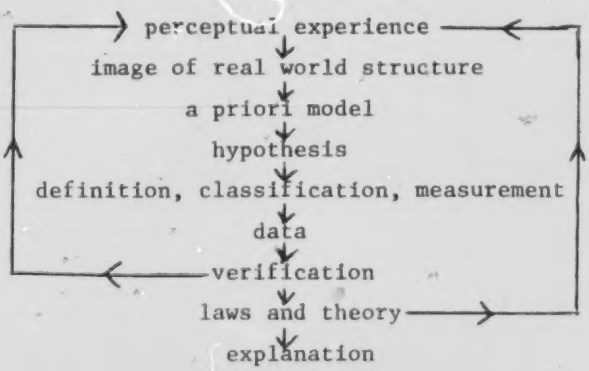
j. Ability to make generalisations or hypotheses in geographical enquiry.

There are two routes of enquiry which may be shown thus:

Empirical-inductive

perceptual experience
↓
unordered facts
↓
definition, classification, measurement
↓
ordered facts
↓
inductive generalisation
↓
laws and theory construction
↓
explanation

Theoretical-deductive




k. Understanding of "what places are really like" through the reality of field-work and through case-studies of varied landscapes.

l. Comprehension of distribution patterns which are significant for human activities, eg "million cities".

m. Comprehension of similarities of certain basic patterns, eg hierarchy of settlements depending upon service function.

n. Comprehension of continuous change in geography in that the physical and cultural landscape is changing.

o. Understanding of relationships between elements in man-environment systems.

p. The application of geographical techniques to a set of data to show trends or develop generalisations.

q. The synthesis of geographical elements into a new arrangement eg through models or operational games.

r. The evaluation of decisions and explanations.

2.5.4 The foregoing statement from Scotland has been quoted not as a model for other countries but as an example of the way in which one country is seeking to re-define the purposes of geography teaching for the terminal secondary stage of education to suit its own particular circumstances. In general, statements of objectives in the member states usually take the form of syllabuses which prescribe, with degrees of detail which vary from one country to another, the programme of learning which is to be followed; frequently this leads to an examination, though this is not always the case. Some of the syllabuses submitted by delegates will be discussed in the next chapter, but, to anticipate, it is evident that a lack of precision in defining learning objectives is characteristic. It is evident that much of the geographical teaching takes place against a background of nationally agreed ideas and accepted practices, or even prescribed textbooks, which render superfluous a detailed catalogue of learning objectives. For this reason, delegates were asked to complete questionnaires on objectives which would reveal these areas of consensus, and the results are recorded in Tables 1, 2, 3 and 4. The tables, which refer to the upper secondary level, were compiled from two sources. For those countries which completed the 1974 questionnaire, rather more information is available than for countries which dealt only with the earlier questionnaire completed at the end of 1971. The analysis, which follows, runs parallel to the order laid out in Diagram 2. In reading the tables, it must be remembered that the comparabilities implied in the gradings "very important" (A), "important" (B) and "not important or not taught" (C) are primarily internal comparabilities within the country concerned. There are no yardsticks by means of which these relatively crude zones of assessment can be calibrated into strictly matching scales which can be confidently applied across all the member states. But, over the years, there have been many inter-state visits, and a good deal of exchange of ideas and textbooks, and there is a sound basis for assuming a large measure of agreement on what is meant by the scales used in the tables. The low standing of geography in upper secondary education in Cyprus is reflected in uninterrupted entries of the lowest grade for all items in Tables 1, 2, 3 and 4. To save repetition, no further reference to Cyprus is made in the sections immediately following which deal with elements of knowledge. The entries for Spain are based not on the situation which existed when the questionnaire was completed but on proposals which were expected to come into effect from 1972 onwards. Before this date, geography did not figure in the curriculum of the more academic students beyond about 16 years of age.

2.6.1 Elements of knowledge (Table 1)

Physical geography

The first thing to be said of the two main sections of geomorphology and climatology is that they occupy a high place in the geography programme throughout the member states with the single exception of the Federal Republic of Germany, which has replaced geography in the upper secondary school by integrated studies which include contributions from geography specialist teachers. Although the same

TABLE 1

Teaching objectives. (a) Elements of knowledge

A: very important
B: important
C: not important or not taught

* Indicates returns based on 1971 Questionnaire only, which provided less information.

| | Austria | Belgium | Cyprus | Denmark | Fed.Rep. of Ger. | Finland | France | Greece | Iceland | Ireland | Italy | Luxembourg | Netherlands | Norway | Spain | Sweden | Switzerland | Turkey | United Kingdom |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | * | | | * | | | * | | | | * | * | | * | |
| Geomorphology (Descriptive | A | A | C | B | C | C | A | A | B | A | A | B | A | A | B | A | A | A | A |
| Geomorphology (Explanatory | B | B | C | B | | B | B | | B | A | | B | B | A | | | A | | A |
| Climatology (Descriptive | B | B | C | A | C | C | A | A | A | A | A | B | B | A | B | A | A | A | A |
| Climatology (Explanatory | C | B | C | A | | B | B | | A | A | | B | A | A | | | A | | B |
| Biogeography | A | A | C | B | C | B | C | A | C | A | A | B | B | B | C | C | C | C | B |
| Population (Distribution | A | B | C | A | A | A | A | A | A | A | C | A | A | A | B | A | A | A | A |
| Population (Structure of labour force | A | C | C | A | | A | B | | B | A | | A | A | B | | | A | | B |
| Settlement (General | A | A | C | B | A | A | C | B | B | A | C | C | A | C | A | A | B | A | B |
| Settlement (Theoretical models | C | C | C | C | | A | C | | C | C | | B | A | B | | | B | | B |
| Industry (Distribution | A | A | C | A | A | A | B | A | B | B | C | A | A | B | A | A | B | A | A |
| Industry (Theory of location | A | B | C | B | | A | C | | C | C | | A | A | A | | | C | | B |
| Agriculture | A | B | C | A | A | B | B | A | B | A | C | A | A | A | A | B | B | A | B |
| Transport and communications | A | B | C | B | A | B | C | A | B | B | C | A | A | A | B | A | B | A | A |
| Network analysis | B | B | C | C | | B | C | | C | C | | B | A | C | | | B | | B |
| Urban models | B | B | C | C | | A | B | | C | B | | C | A | C | | | B | | B |
| Regional studies: | | | | | | | | | | | | | | | | | | | |
| Home country | A | B | C | A | B | C | A | B | B | B | C | A | A | A | A | A | A | A | A |
| Europe | A | B | C | B | B | C | A | C | B | B | C | A | A | C | B | A | A | A | A |
| USSR | B | C | C | B | B | C | B | C | C | C | C | A | A | C | B | A | A | A | B |
| USA | B | B | C | B | | C | B | | B | B | | A | A | | | | A | | B |
| North America | B | B | C | B | B | C | B | C | B | B | C | A | C | C | B | A | A | A | A |
| Latin America | B | C | C | B | B | C | B | C | C | C | C | B | C | C | B | A | B | C | B |
| Asia | B | B | C | B | B | B | B | C | C | C | C | A | B | C | B | A | A | C | B |
| Africa | B | B | C | B | B | C | C | C | C | C | C | B | C | C | B | A | A | B | B |
| Oceania | C | C | C | B | C | C | C | C | C | C | C | C | C | C | C | C | C | C | B |

Note. In the 1971 Questionnaire, no distinction was made between description and explanation in geomorphology and climatology. Entries in these rows and columns therefore refer only to general geomorphology and climatology.

basic principle of integration has been adopted in Sweden, this country has ensured the continuation of physical geography at a high academic level by incorporating it (together with aspects of mathematical geography) in natural science and mathematics courses. The answers to the more detailed questionnaire reveal some small differences of emphasis between a descriptive and an explanatory treatment with about one-third of the countries giving less importance to causation than to the characteristics of land-forms and climate. Finland alone reverses this order by giving preference to genetic rather than descriptive studies; the Netherlands also emphasises genetic studies in climatology, and this may well reflect the critical place of climatic and meteorological studies for the security of certain polder-lands as well as widespread maritime interests. Land-forms, weather and climate have a much longer historical association with geography than the newer field of biogeography. In spite of the growing importance of habitats, ecology and ecosystems in questions of resource-management and conservation, biogeography still occupies an unimportant place in about half of the countries.

2.6.2 Human geography

Before embarking on a discussion of human geography, it may be well to note that Italy is excluded from consideration since no form of human geography (or indeed regional geography) enters into the programme at the upper academic level, where the course is devoted entirely to physical geography. (This statement applies to "lycée gymnase" and the "lycée scientifique", but not to the "école normale".)

2.6.3 The items selected for inclusion in the questionnaire were chosen to demonstrate the current standing of elements which vary considerably in the length of time for which they have been established features in geographical publications. The distribution of population and industry and general studies of agriculture, settlements, transport and communications have all been well established for most of the 20th century in both advanced and elementary textbooks. Mapping techniques concerned with them are familiar to most older students at school, and distribution maps are frequently combined with other mapped data to illustrate relationships. For example, crop distributions may be linked with isotherms or isohyets; population distribution with climate, soils, minerals and industries; industries with power supplies or markets; and roads, railways and canals with physical features and population densities. In addition, each of these items may figure in regional description or explanation, or may be treated systematically on a continental or a world scale as a separate topic for description, analysis and explanation. They occupy an important place in traditional geography, and are almost universally regarded by member states as important or very important. There are small exceptions such as the minor status in France attached to settlement, transport and communications and in Luxembourg to settlement.

2.6.4 The remaining items on human geography shown in Table 1 represent departures from traditional geography which have begun to receive recognition in popular geographical publications, mainly in the last one or two decades. There are two analytical items - the structure of the labour force and network analysis. The first-mentioned was chosen from among a number of possible topics dealing with population because of its value in social and economic geography. In particular, it sheds light on (a) differences between underdeveloped and highly developed countries, and (b) the relationships that exist in highly developed countries between the tertiary sector of employment and urban patterns, settlement functions and communications. No new techniques are needed to undertake the kinds of analysis involved in this item at school level, and it has been widely incorporated into geographical objectives with the highest rating of importance recorded in the survey. Network analysis may be undertaken at an elementary level by a study of maps, but, if it is to receive any serious depth of treatment,

it calls for new techniques, particularly in topology and the manipulation of formulae, which at first sight may appear to be difficult. While it has gained a fairly good support, it is only in the Netherlands that it is regarded as very important.

2.6.5 The last three items have been drawn from the realms of theoretical geography and are greatly indebted to ideas which have been current in economics for a good many years - for example the industrial location theories of Weber (much modified by later writers), Christaller's and Lösch's models of settlement patterns, and Burgess' and Hoyt's models of urban land use. To some extent, it is possible to examine certain key ideas in these items without recourse to the geometric models and algebraic computations which figure in more advanced works, such as agglomeration, deglomeration and market orientation in industrial location, the ideas of the range of goods and services or hierarchy in settlement theory, and differential land values and functional zones in urban models. With growing experience, however, the theoretical models appear to be gaining ground in the more academic courses in certain quarters. Most of the twelve states which supplied information now regard urban models and the theory of industrial location as important or very important, but theoretical models of settlement patterns are subscribed to by only a minority.

2.6.6 The results of the enquiry about physical and human geography are represented visually in Diagram 3. This gives a strong impression of the general consensus afforded to the traditional objectives in geography teaching and to the widespread acceptance of certain newer developments in the subject. Whether some of the objectives which are at present less favoured will gain ground remains to be seen. As the record stands at present, they indicate some divergences of practice in a total spectrum which shows a large measure of agreement among the countries concerned.

2.7.1 Regional studies (see Diagram 4)

A similar high degree of agreement is evident with respect to the areas chosen for regional studies. The position in Cyprus and Italy has been mentioned earlier in this chapter; to these countries may be added Norway and Greece which, at the upper secondary level, have no regional geography outside the home country and Finland which concentrates mainly on Asiatic studies. For the remaining countries, a generally high ranking of importance is given to studies of the home country followed closely by Europe, North America or the USA, and the USSR. Among the less highly developed areas of the world, Asia appears more frequently than Africa and Latin America, but all are fairly important; Oceania is of little importance except in Denmark and the United Kingdom. Although continents with more advanced economies receive more attention than the others, it is only in Iceland and Ireland that third world studies have little or no importance.

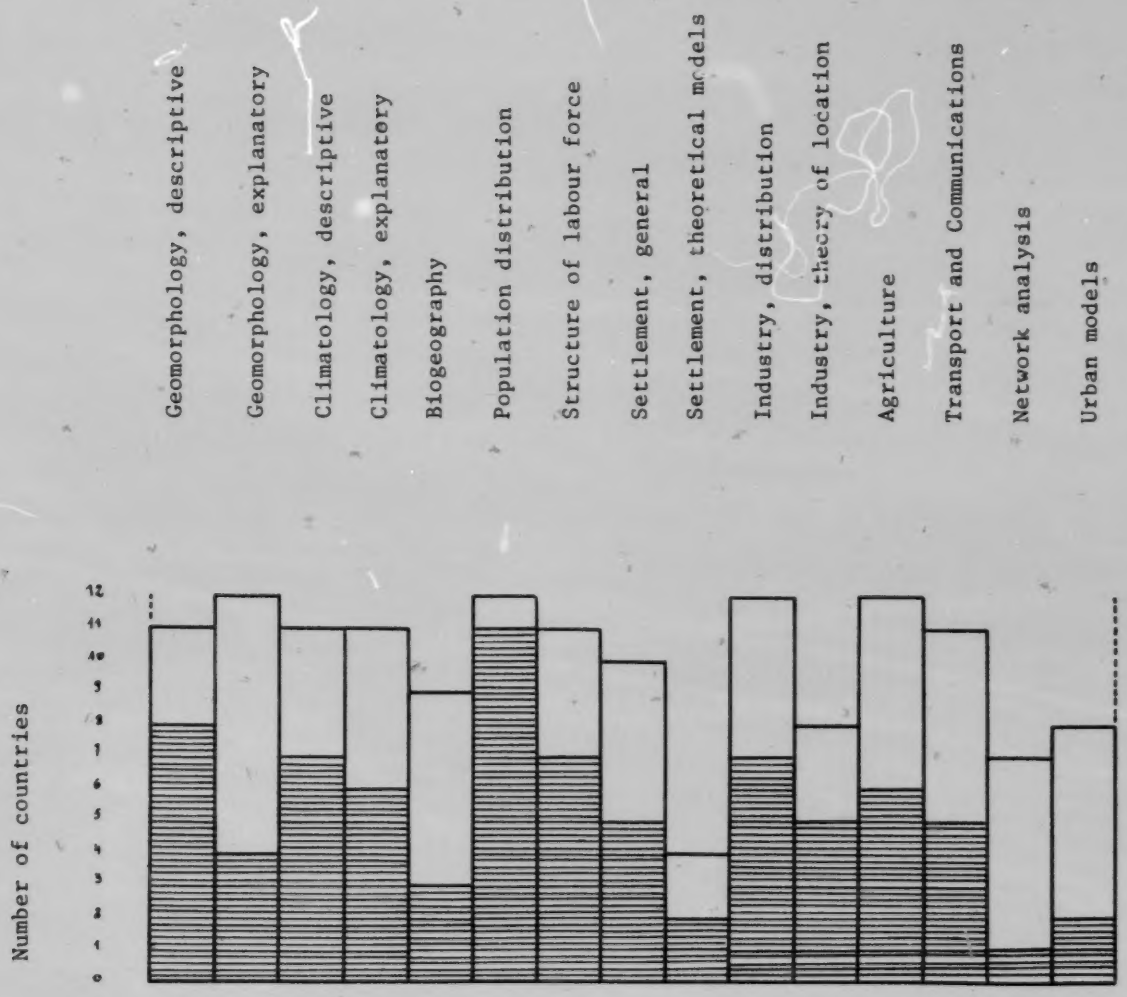
2.7.2 Thus, three principles seem to be commonly reflected in the choice of regional studies.

a. Continuity in space. The immediacy of the home country and close involvement with European neighbours place a premium on detailed studies in these areas.

b. Power politics. The importance of the USA and the USSR in the world political scene makes a strong claim that students should be knowledgeable about these great powers. To judge by some of the available syllabuses of work, the frequency with which Asiatic studies appear in Table 1 partly reflects a special interest in China and Japan.

Diagram 3

Weight of importance given to selected objectives in physical and human geography



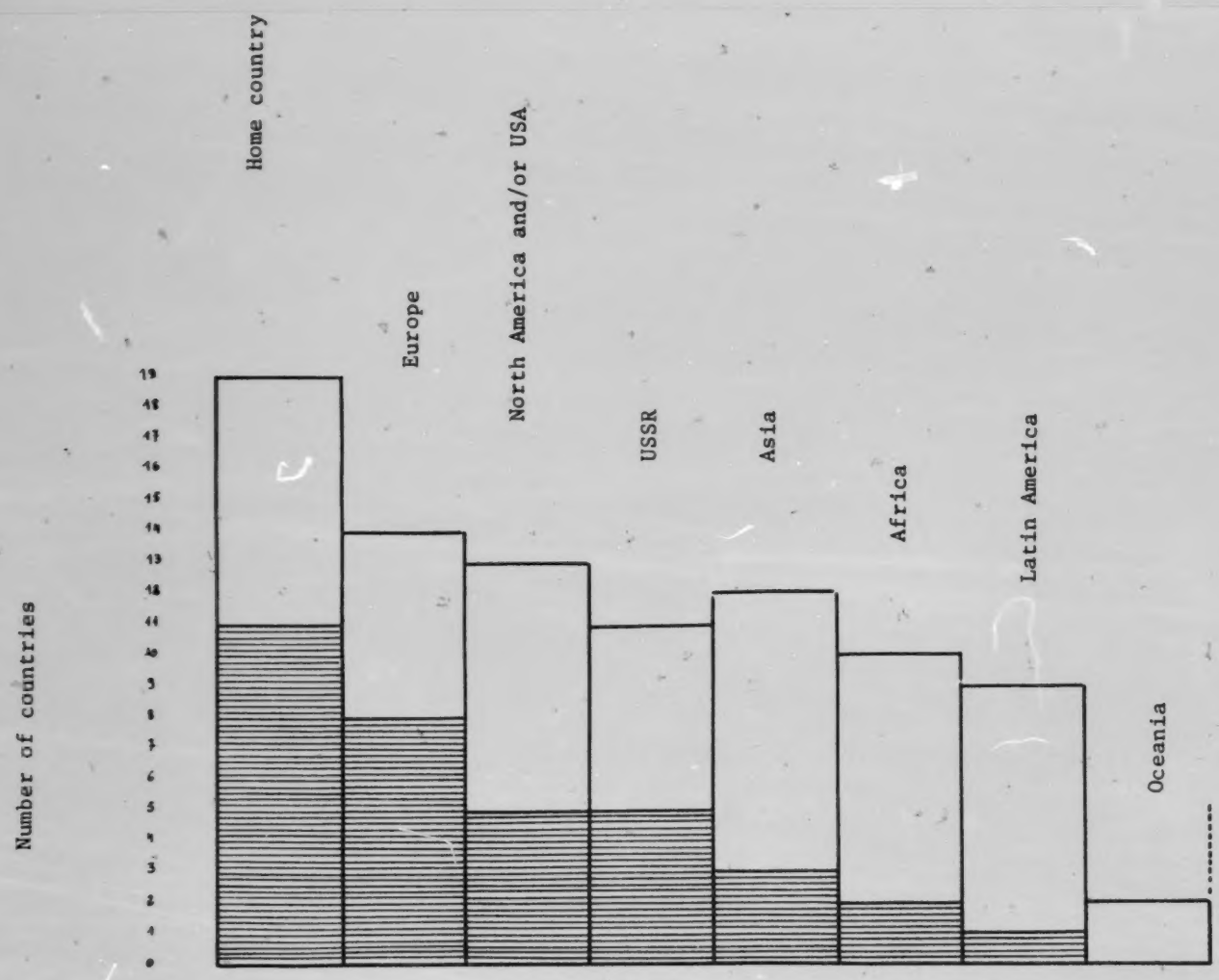

The diagram refers to 12 countries only, for which detailed information was available (Austria, Belgium, Denmark, Finland, France, Iceland, Ireland, Luxembourg, Netherlands, Norway, Switzerland and the United Kingdom). It shows the number of countries regarding each item as:

a. very important: shaded area in each column

and b. important: unshaded area in each column

Diagram 4

Weight of importance given to main areas chosen for regional studies




The diagram refers to 19 countries.

It shows the number of countries regarding each area as

a. very important - shaded area in each column
and b. important - unshaded area in each column

c. International understanding. While understanding is necessary between neighbours and among affluent nations, it takes on a special significance when affluent nations are concerned to be knowledgeable about those which are economically less developed. For this desire for knowledge is frequently allied to a growing sense of responsibility, to which geography teachers may make important contributions. This particular aspect appears as a separate object of enquiry in a later part of this chapter.

2.8.1 Skills and techniques

The cultivation of skills and techniques runs through the whole of the educational process. Some are of a general character and are associated with many subjects; such are the skills of learning and communicating by means of the spoken and written word (literacy), various forms of mathematical applications (numeracy), and graphical and cartographical means (graphicacy). There are few skills that can be regarded as the sole preserve of a single subject, but it is widely recognised that the primary responsibility for instruction and training in certain skills rests with particular subject specialists. For example, it is generally accepted that skills in map-reading are largely taught as part of the subject of geography, though other subjects make use of maps. On the other hand, teachers of mathematics accept primary responsibility for statistical skills, and teachers of science for techniques in handling instruments which measure atmospheric pressure, temperature and humidity; but, in both cases, teachers of geography make considerable use of these skills for their own purposes, thus extending the students' experience and competence in them. For the purpose of the survey, a selection of techniques was made, some of them long established in geography courses and others more recently introduced, to demonstrate the extent to which they are involved in current courses at the upper secondary education level. Table 2 sets out the result of the enquiry, and these are presented visually in Diagram 5. For reasons which have been explained earlier (in Section 3.5.4), the returns from Cyprus have been omitted from the analysis.

2.8.2 Three of the sets of skills may be regarded as a main responsibility of geography teachers, namely, those associated with maps, particular kinds of photographs, and field sketches.

a. Map skills. These include the ability to read and interpret not only large-scale maps which depict land-forms and human geography in considerable detail (eg the 1 in 50.000 series published by many countries), but also the small-scale maps to be found in atlases and a variety of locational and distribution maps which use isopleths, choropleths, dots, colours, symbols and other cartographical devices. In some countries, students may also be required to construct maps of various kinds. While no attempt was made to analyse the full range of map skills taught in each country, it is clear from the relevant table and diagram that a continued training in them is almost universally regarded as important or very important, Finland being the only exception in the 16 countries now being considered.

b. Photographic interpretation in geography is concerned with two different kinds of photographs. First, there are the vertical and oblique aerial photographs (the former sometimes produced in stereoscopic pairs) which cover considerable areas of land and, in skilled hands can be used for certain purposes as substitutes for large-scale maps. Second, there are ordinary photographs depicting features in physical and human geography from which students may gain expertise in extracting information. They can often be used as substitutes for observation "in the field", and are especially valuable when they portray phenomena which lie outside the direct experience of the students. Finland, France and Iceland give a comparatively low rating to these skills, but other countries rate them highly or very highly.

TABLE 2

Teaching objectives (b): skills and techniques

A: very important
B: important
C: not important or not taught

* Indicates returns based on 1971 Questionnaire only.

| Skills associated with the following: | Austria | Belgium | Cyprus | Denmark | Fed.Rep.of Germ. | Finland | France | Greece | Iceland | Ireland | Luxembourg | Netherlands | Norway | Spain | Sweden | Switzerland | United Kingdom |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | * | | | * | | | | | | * | * | | |
| Maps | A | B | C | A | A | C | B | A | B | A | A | A | A | A | A | A | A |
| Statistical tables and diagrams | B | B | C | A | A | B | B | A | B | A | A | A | A | B | A | A | A |
| Correlation coefficients | B | B | C | C | | C | C | | C | C | B | A | C | | | C | B |
| Regression analysis | C | B | C | C | | C | C | | C | C | B | A | C | | | C | B |
| Photographic interpretation | A | B | C | B | A | C | C | B | C | A | B | A | A | B | A | A | B |
| Field sketches | B | B | C | B | B | C | B | C | C | C | B | B | B | C | B | A | B |
| Hardware models | C | C | C | B | C | B | C | C | C | B | C | C | C | C | B | C | C |
| Surveying | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C |
| Soil testing | C | C | C | C | C | B | C | A | C | B | C | C | C | C | C | C | B |
| Meteorological investigation | C | C | C | B | C | A | C | B | C | A | C | C | B | C | C | B | B |

c. The construction of field sketches is allied with opportunities for outdoor exercises in geography but the reading of field sketches may be carried out in the classroom. Field-sketching calls for a process of selection by means of which certain phenomena are fully recorded while others are vaguely delineated or ignored so as to focus attention on specific features or spatial relationships that exist among them. Of the 16 countries, 10 rated them as important but only 1 as very important. It may well be that they are, to some extent, being replaced by the camera, but they still retain a fairly high place in geography courses.

2.8.3 Next there is a group of topics involving mathematical and statistical techniques.

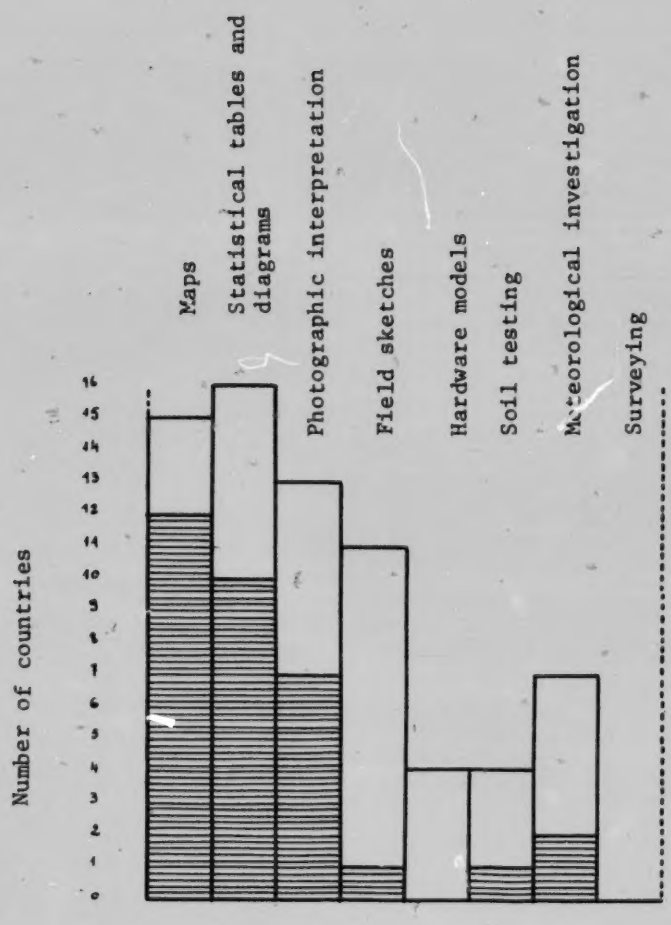
a. Statistical tables and diagrams. A good deal of information about the world and individual countries or regions appears in the form of statistics concerned with such diverse matters as distances, rainfall, temperature, population, agricultural and industrial production, minerals, and data concerned with standards of living. Among their many uses, statistics may describe the relative importance of items in a set, compare one situation with another at a given moment of time, and describe changes which take place over a period of time. (Examples of each of these are: a list showing the values of the main exports of a country; a list showing mean July temperatures for a large number of stations distributed over a continent; figures showing the declining production of coal and the rising imports of oil in Western Europe from 1950 to 1974.) Students need to learn how to distinguish the significant items recorded from those of little importance, to estimate the relative importance of items in a given context, and to estimate rates of change. Among the many devices employed to clarify statistical information are graphical methods of which the commonest are histograms, line-graphs (for continuous variables) and pie-diagrams. These, and other means, have wide currency in geography textbooks and in other sources which are used by geographers such as official national publications or the statistical volumes of the United Nations. The importance attached to skills in these fields of statistics and diagrams is attested by the fact that, without exception, all of the 16 countries give them a high or very high ranking.

b. In the preceding paragraph, statistics have been dealt with mainly as a form of description or, at best, in terms of a relatively simple means of analysis. In recent years, there has been a tendency to employ more sophisticated methods of analysis leading to more precise statements concerning relationships which exist between two or more variables. Among the quantitative methods which have become recognised tools for geographers, correlation coefficients and regression analysis - both susceptible to adaptation to school use - call for the application of simple formulae and graphical techniques. Of the 12 countries replying to the later questionnaire, 5 now gave an important rating to correlation coefficients and 4 to regression analysis, the Netherlands regarding both as very important. The other countries which have adopted these newer skills are Austria, Belgium, Luxembourg, and the United Kingdom.

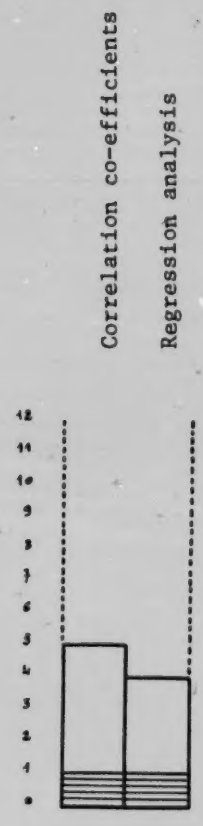
2.8.4 The last group of skills requires the use of instruments or manipulations of various kinds, namely those concerned with soil-testing, meteorological investigations, surveying and hardware models. The first three require some work out of doors.

Diagram 5

Weight of importance given to skills and techniques associated with items indicated at the head of each column




Analysis for 16 countries




Analysis for 12 countries

The diagrams show the number of countries regarding each set of skills as:

a. very important - shaded area in each column, and
b. important - unshaded area in each column.

a. Understanding basic geographical concepts. No attempt was made in the questionnaire to define the term "basic geographical concepts", though the many contributions made by delegates at the 1971 meeting showed that there was a great deal of common ground in the use of the term. Although there was a somewhat restricted reference to the more abstruse "high level" concepts - such as "agglomeration", "centrality" and "friction of distance" - there was general familiarity with many concepts associated with physical and human geography and with the recurring relationships that existed among them. For example, concepts linking agriculture with climate, markets and techniques of husbandry, concepts concerned with urbanisation, concepts relating to economic levels of development and many others were reckoned to be of central importance to geography teaching. The evidence obtained from syllabuses of work, papers prepared for the conference and discussion suggests that it is these "middle level" concepts which were so strongly supported in this section of the enquiry.

b. Ability to identify problems. Even stronger support was given to the cultivation of the ability to identify problems. For younger pupils, teachers are inclined to draw attention to the existence and the nature of problems in geography and either to offer explanations or to induce pupils to produce them. At the more mature stage with which this report is concerned, very great importance was obviously given to encouraging students to analyse situations for themselves and to define the nature of problems which call for explanation.

c. The ability to analyse has already been touched on in the previous sentence in the limited context of problem situations, but it also applies to methods of handling the diverse kinds of data with which geographers work, such as statistics, maps, photographs and written material. Analysis is commonly an essential prelude to synthesis.

d. The ability to synthesise is seen in its most characteristically geographical form in regional description and explanation. It is, also, widely used in systematic physical and human geography when a variety of inputs of information obtained by direct observation or from second-hand sources has to be organised into an orderly account, as for example in describing the distribution of climatic regimes in a large area or the distribution of a particular type of farming.

e. The ability to evaluate may be applied to estimating the strengths, weaknesses and reliability of evidence and to selecting that which is most relevant to the task in hand. It calls for the exercise of judgement based on experience. While nearly all the countries regard it as important, only four placed it in the highest category of very important; and it is notable that two of these were the Federal Republic of Germany and Sweden which integrate geography into socio-political studies.

f. Inductive reasoning is closely associated with the empirical search for relationships and explanation when two or more variables are being considered - for example the distribution of an industry with respect to raw materials, energy and markets. This follows the time-honoured geographical method of working from observed or recorded facts to the establishment of inter-relationships and principles.

g. Deductive reasoning, on the other hand, works from accepted principles or theories; given certain well-defined conditions, it attempts to deduce the presence of facts normally associated with those conditions. It has been widely applied for many years in geomorphology and climatology, but is increasingly being used in human geography where the parameters are more variable and the margins of probability less well defined. It is slightly less popular than inductive reasoning but not markedly so.

TABLE 3

Teaching objectives (c): developing ways of thinking (abilities)

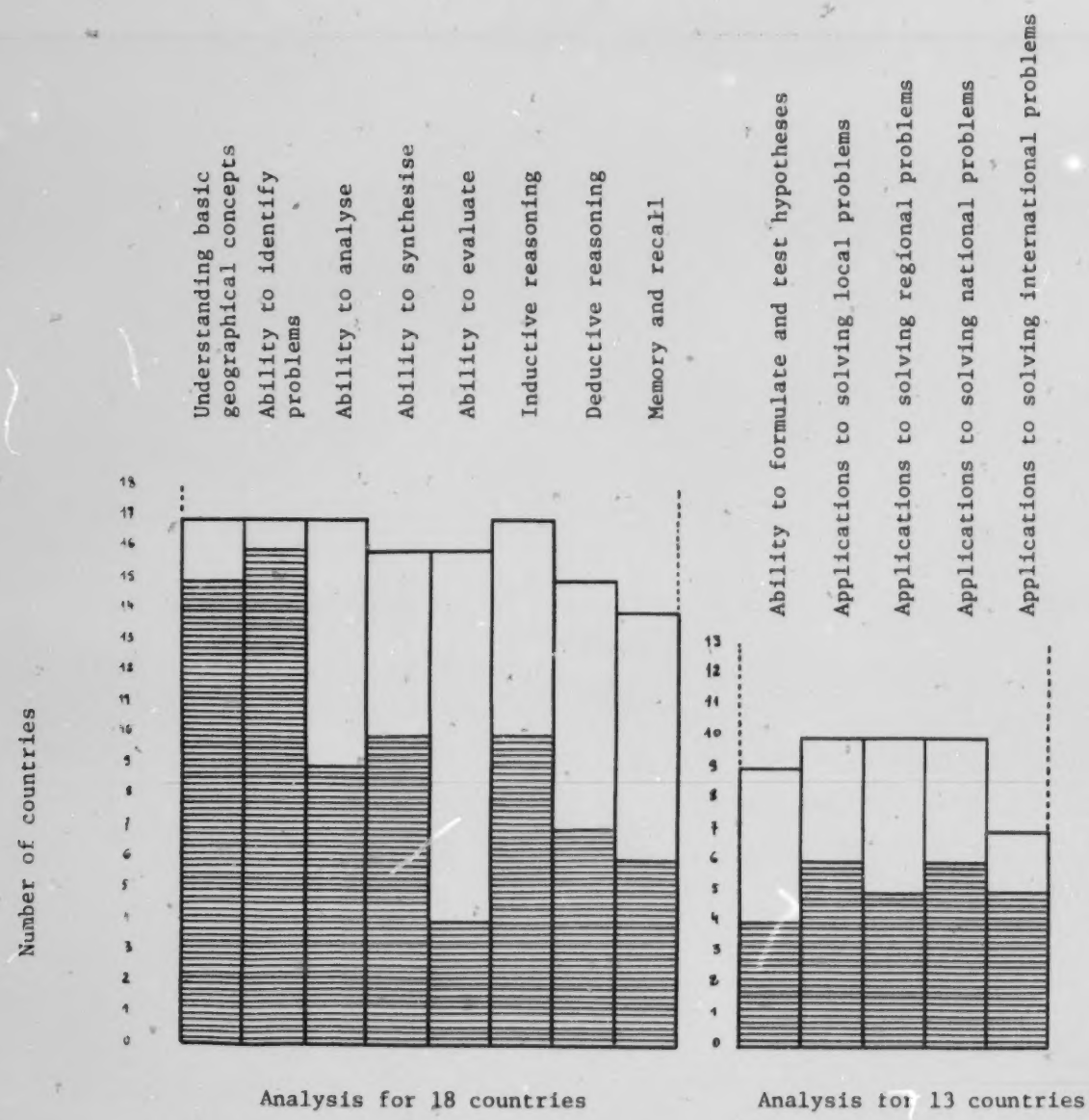
A: very important
B: important
C: not important or not taught

* Indicates returns based on 1971 Questionnaire only.

| | Austria | Belgium | Cyprus | Denmark | Fed.Rep. of Germany | Finland | France | Greece | Iceland | Ireland | Italy | Luxembourg | Netherlands | Norway | Spain | Sweden | Switzerland | United Kingdom |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | * | | | * | | | * | | | | * | * | | |
| Understanding basic geographical concepts | A | A | C | B | A | C | A | A | A | A | A | A | A | A | A | A | A | A |
| Ability to identify problems | A | A | C | B | A | B | B | B | A | A | B | A | A | A | A | A | B | B |
| Memory and recall | B | C | C | B | A | B | A | A | A | B | B | B | A | C | C | B | B | A |
| Inductive reasoning | B | A | C | B | A | B | A | A | B | B | B | A | A | A | A | A | B | A |
| Deductive reasoning | C | C | C | B | A | B | B | A | B | B | B | A | A | A | A | A | B | B |
| Formulate and test hypothesis | B | A | C | B | | A | C | | B | C | | A | A | B | | | C | B |
| Ability to analyse | B | A | C | B | A | A | A | B | B | A | B | A | A | B | B | A | A | B |
| Ability to synthesise | B | A | C | B | A | A | A | B | B | A | B | A | A | C | B | A | A | A |
| Ability to evaluate | B | B | C | B | A | B | B | C | B | B | B | A | A | B | B | A | A | B |
| Applications (Solving local problems | B | C | C | B | | A | B | | C | A | | A | A | A | | | A | B |
| Applications (Solving regional problems | B | C | C | B | | B | B | | C | A | | B | A | A | | | A | A |
| Applications (Solving national problems | A | C | C | B | | B | B | | C | A | | A | A | A | | | B | A |
| Applications (Solving international problems | B | C | C | B | | C | C | | C | A | | A | A | C | | | A | A |

Diagram 6

Weight of importance given to developing ways of thinking




The diagrams show the number of countries which regard the development of ways of thinking indicated at the head of each column as:

a. very important - shaded area in each column, and
b. important - unshaded area in each column.

h. Memory and recall. It has frequently been argued by non-geographers that success in geography examinations is largely a matter of memorising and reproducing factual matter learned from books and teachers. While it is patently true (and this applies pari passu to almost every subject of the curriculum) that in geography a body of knowledge of the world is necessary to the various styles of thinking previously described in this section, it is interesting to note that several countries ascribed less importance to memory and recall than to the development of thought processes. Most countries, however, still regard factual recall as an important or very important part of geographical education.

2.9.2 To summarise the replies received from 18 countries in this section, the outstanding feature is that there is almost universal acceptance of the philosophy that the cultivation of abilities to think, to understand basic concepts and to exercise judgement are central issues in the teaching of geography at the upper academic levels in schools.

2.10.1 Finally, there is the group of questions which appeared in the second questionnaire only, and to which 13 countries submitted responses. The first - the ability to formulate and test a hypothesis - is a method of working in which reasonable speculation is followed be recognised testing procedures. The second group concerns the ability to apply geographical skills and knowledge to the solution of real problems which confront mankind.

i. The formulation and testing of a hypothesis. This method of enquiry involves ways of thinking which are somewhat different from those previously dealt with. It may be carried out at a simple level. For example, the hypothesis that, in a region of uniform physical characteristics, crop yields increase in relation to the amounts of fertiliser applied to the land may be tested by collecting information on productivity and fertiliser inputs at a fairly large number of points. If there is an overall close correlation between the two variables, the hypothesis may be regarded as established. But, if the results show that different crops respond in different ways, or that additions of fertiliser beyond a certain point yield diminishing returns, the hypothesis would need to be modified, and a new hypothesis tested. Some hypotheses, particularly those involving several variables call for careful sampling techniques, the tabulation and processing of "observed frequencies" and "expected frequencies", and the application of one of the non-parametric statistical tests of significance. Thus the method may be applied at different levels of difficulty. Most of the countries regard it as important that students should receive training in this method of thinking.

j. The application of geography to the solution of real problems was the subject of enquiry at four differing scales of magnitude - local, regional, national and international. Local and regional problems often focus attention on issues which are within the direct experience of the students. Typical examples are the siting of new roads and public buildings, the enlargement or redistribution of employment opportunities, or methods of dealing with recurrent floods. They afford opportunities for making use of knowledge and skills gained from the study of geography and demonstrate the contributions that geographers may make in environmental planning and management. Students confronted with such problems are often highly motivated. Similar advantages are often associated with the study of national problems even though the issues tend to become more complex, and sometimes more remote, as areal coverage is increased. The survey revealed a fairly high regard for training students in applied geography at local, regional and national scales. Applications of geography to the solution of international problems, though well supported, are not as widely pursued.

2.10.2 The significance of the generally positive attitude of countries towards this group of topics is that teachers are not merely concerned with a discipline that stands aloof from the practical affairs of the world. On the contrary, they are concerned to communicate its usefulness in improving the quality and efficiency of the environment in relation to human needs. The final group of objectives in this survey enlarges this theme by analysing some personal and social values in current geographical education.

2.11.1 The development of attitudes

Only three items were included in the questionnaire under this heading and the summary of replies is displayed in Table 4 and presented visually in Diagram 7.

a. The enjoyment of environment is enriched by an awareness of the complex forces in nature and society that conspire to produce the rich variety of landscapes on the surface of the earth in their changing moods and aspects. The person who knows something of geology, structure, the forces of denudation, the mantle of natural vegetation and the history and impact of human occupancy views the landscape with a heightened appreciation of its qualities.

b. An appreciation of the need for conservation arises not only from the enjoyment of landscape but also from a study of the national and global resources upon which mankind depends - air, water, living-space, soil, minerals, plants, animal life and the rest - and the ways in which they are used or abused. As has been mentioned earlier in this report, a sense of responsibility towards the preservation of the earth as a suitable habitation for mankind has become an urgent necessity.

c. Similarly the promotion of international harmony, which is in part dependent upon an understanding of the conditions of life, problems, aspirations and beliefs of other nations, must be pursued in the interests of international co-operation and world peace.

2.11.2 None of these attitudes can be expected to flow automatically as a side benefit from the teaching of geography. They demand a conscious effort on the part of educationists in focusing attention on these important issues. The evidence derived from the enquiry clearly indicates that teachers in nearly all of the member states accept these social responsibilities as part of their function, with a particular emphasis upon promoting international understanding.

2.12 To end this chapter on geographical objectives in the upper secondary school, it should be remembered that the absence of particular elements in any single country may not always be ascribed to a prevailing philosophy on the purpose and scope of geography. Some compensation for omissions may often be found in the earlier years of the course with which this report is not concerned. Even more important is the fact that in some countries geography receives a minimal allocation of time, thus limiting the range of work which may be attempted. Differences in time allocations will be dealt with later in this volume.

TABLE 4

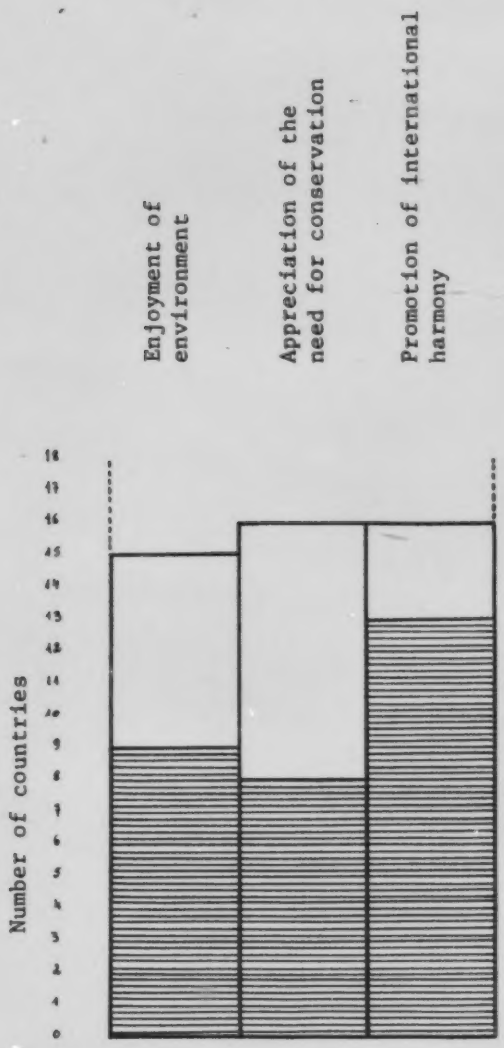
Teaching objectives (d): development of attitudes

A: very important
B: important
C: not important

| | Austria | Belgium | Cyprus | Denmark | Fed.Rep. of Germany | Finland | France | Greece | Iceland | Ireland | Italy | Luxembourg | Netherlands | Norway | Spain | Sweden | Switzerland | United Kingdom |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Enjoyment of environment | B | B | C | A | C | B | A | A | B | A | C | B | A | B | A | A | A | A |
| Appreciation of need for conservation | B | B | C | B | A | C | A | B | B | B | B | A | A | A | B | A | A | A |
| Promotion of international harmony | A | A | C | A | A | B | A | A | A | C | B | A | A | B | A | A | A | A |

Diagram 7

Weight of importance given to the development of attitudes indicated at the head of each column


Enjoyment of environment
Appreciation of the need for conservation
Promotion of international harmony
Number of countries

The diagram shows the number of countries regarding the development of each attitudes as:

a. very important - shaded area in each column, and
b. important - unshaded area in each column

## CHAPTER 3

## GEOGRAPHY SYLLABUSES

3.1.1 The preceding chapter was devoted to a set of analyses of the aims and objectives of geography teaching under various headings as reported by most of the member states. This analytical approach permits an overview of the ingredients which countries variously assemble to prepare their geographical diets, but tells nothing of the recipes - the processes of assembly - by which the ingredients are combined to form syllabuses. This chapter examines a number of syllabuses, some in detail and others in summary. Simply to reproduce all the available official syllabuses would possess the merit of accuracy; but this virtue would be counterbalanced by a great deal of repetition leading to boredom and a confusion of detail without perspective.

3.1.2 Broadly speaking, the syllabuses fall into four groups:

a. those which afford a substantial recognition to all the main traditional sections of the subject, that is, physical, human and economic geography and regional studies, together with a certain amount of mathematical geography;

b. those which have shifted the emphasis towards human and economic geography, both as general studies and in the treatment of regions, with a diminution of emphasis on the physical aspects;

c. those which no longer continue the study of geography as a separate discipline at the upper secondary level but include, in some form of interdisciplinary syllabus, much that would elsewhere be thought to fall within the province of geography;

d. those which, for one or more reasons, concentrate on a very limited range of geographical studies, but still regard geography as a separate subject in the curriculum.

3.1.3 In considering these groups, it is necessary to take into account the fact that, in some countries, the upper secondary course is regarded as extending over a period of three years while in others it extends for two years only. It is tempting to add a fifth category, namely those syllabuses which give great prominence to skills and techniques. But, as has been indicated in the previous chapter, behind official statements there often lies a hidden curriculum composed of unstated but commonly accepted objectives which teachers pursue without the need of a special mandate. For the purposes of this chapter, the four groups have been classfied under the headings (a)"comprehensively based", (b)"socially modified", (c) "integrated" and (d) "partial" syllabuses. The headings have the advantage of brevity but, recognisibly, do not indicate total parallelism within each group and, in some cases, fail to do justice to the ill-defined border-zones which separate one group from another.

### a. Comprehensively-based syllabuses

3.2.1 The syllabus for the higher level leaving certificate of Ireland is presented as an example of a comprehensively-based syllabus as defined above, though the map-work, and the detailed requirements in respect of practical work, including field-work, may not be wholly typical of most European countries. The Irish syllabus is divided into four sections - map-work; physical, social and economic geography; regional geography; field studies.

A. Map-work

i. Ordnance Survey (1) maps: The study of Ordnance Survey maps with special reference to scale (including reduction and enlargement), legend of the map (including grid reference, position, bearings and direction) and the representation of relief. Interpretation of the physical landscape based on recognition of land-forms and drainage patterns. Interpretation of man's imprint on the landscape; distribution and density of settlement (urban and rural), types of towns, place names, communications. Written descriptions with illustrations and sketch maps indicating major relationships.

ii. Aerial photographs: Identification of natural features; description of physical and man-made landscape; interpretative study of aerial photographs; relations of photographs to Ordnance Survey and other maps.

iii. Weather charts: Symbols; pressure charts of common situations eg depression, secondary, trough, col, ridge, high pressure. Warm, cold and occluded fronts. Interpretation of charts, present situations, barometric tendency and forecasts. Drawing of charts from supplied data.

iv. Projections: Principles of construction, merits, limitations of map nets and uses, with special reference to - the Gnomonic, conical net of one standard parallel, Sanson-Flamsteed's, Mollweide's and Mercator's projections.

v. Representation of statistics: Drawing of line-graphs, bar-graphs, pie-graphs. Cartographic representation by scales of intensity, dots, isopleths. Interpretation of climatic, economic and demographic statistics. Evaluation of methods of representation.

B. Physical, social and economic geography

i. Physical geography: The common rocks of the earth's crust. Elements of stratigraphy with special reference to Ireland. Earth movements and associated structures. The agents of weathering, erosion transportation and deposition and the resultant land-forms (fluvial, aeolian, marine, glacial).

The erosion cycle in humid, arid and karstic areas. Major relief features of the continents and oceans. Climate and weather. Factors determining temperature, rainfall and pressure. The wind systems of the globe; ocean currents. The major climatic regions. The characteristics and general world distribution of forest, grassland, scrub and desert. Major soil types. The relationship between vegetation, soil and climate.

ii. Social geography. Exploration and discovery. The expansion of Europe overseas.

The nature and distribution of major world cultural areas:

- ethnic groups, religions and languages;

economies:

- primitive, agricultural, industrial;

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(1) In Ireland (as in the United Kingdom), the Ordnance Survey is the Government Department responsible for surveying and mapping the country.

political entities:

- states and their boundaries; capital cities;

world distribution and density of populations:

- rural, urban and migration of peoples.

The social landscape:

- settlement patterns, their location, development, form and function.

Communication networks:

- land, sea and air.

iii. Economic geography.

The factors that affect economic development, for instance, social, political, physical, scientific, educational. The generation and distribution of sources of power - coal, oil, natural gas, water, peat and atomic energy.

Types of industries:

- Primary: agriculture and systems of farming - subsistence, commercial (extensive and intensive), mixed. Animal and vegetable products. Fishing; lumbering; mining and other extractive industries.

- Secondary: food processing, principal metals, textiles and man-made fibres. Geographical factors affecting the location of manufacturing industries. Major industrial areas of the world with special reference to Western Europe, USA, USSR.

- Tertiary: Services and tourism.

- Trade: methods of transport and world trade.

C. Regional geography

A study of the following: Ireland, Britain, France, the Iberian Peninsula, Switzerland, Germany, the Benelux Countries, Italy, Norway, Sweden, Denmark.

A study of one region out of the following: USA and Canada; South America; USSR.

D. Field studies

Geographical field studies of the local region or of a particular aspect of local geography will be undertaken by students presenting themselves for the examination in geography at Leaving Certificate.

3.2.2 In the breadth of coverage of the many facets of geography, the Irish syllabus is similar to many of the ten examination syllabuses which are current in the United Kingdom (seven in England, one in Wales, one in Scotland, and one in Northern Ireland), even though there are many differences in detail. The same may be said of the French and Belgian syllabuses if the final three years are regarded as offering a unified upper secondary school course. Belgium offers three syllabuses at this level. One of them is a new-style experimental syllabus which will be referred to later. The other two syllabuses - one in the Human Sciences section and the other in the Humanities section - have a good deal in common when viewed over the full three-year period leading to the end of schooling, but the former has a wider regional coverage than the latter.

3.2.3 There are three years to be considered in the French Second Cycle of secondary education.

i. For the "Classes de Seconde" (Sections A and C), the geography syllabus prescribes a course in general physical and human geography which is specified as to its contents in far greater detail than in the Irish syllabus. It may be summarised as follows:

- the terrestrial globe-shape, dimensions, latitude and longitude; the nature and consequences of the movements of the earth-time and seasons. Maps and aerial photographs.

Under the heading of physical geography are included:

- the oceans and seas; the atmosphere and elements of climate; climatic regimes and their soils and vegetation; relief and its evolution.

Human geography includes:

- the distribution of the earth's population, races, languages, religions and variations in population densities; population movements; demographic and employment structures; rich and poor societies; cities and economic regions; man and the resources of nature.

The practical work is, apart from the omission of field-work, very similar to that prescribed in the Irish syllabus.

ii. For the "Classes de Première" (Sections A, B, C and D), there is a detailed study of the general and regional geography of France (the latter based on eleven major regions) followed by studies of the Overseas Departments and Territories and of French-speaking Africa and Madagascar.

iii. For the "Classes de Terminale", the course is divided into three parts:

- major problems of the contemporary world - the situation of Europe in the light of the emergence of new powers; independence of the colonies; contrasts between unequally developed countries; capitalist and socialist economies; and demographic tendencies;

- the principal economic and social powers; this comprises studies of a selection of countries from Europe, the Americas and Asia and the USSR;

- the technological foundations of economic life - the main sources of energy and the general conditions and organisation of production.

3.2.4 In the preceding section which deals with the principal economic and social powers, the French syllabus carries an instruction which specifies that "the emphasis will be placed on social and economic features. Morphological and climatological considerations will be included only to the extent that they occur within the human geography". This instruction, together with the general tenor of the course in the terminal year, illustrates the difficulty of attempting to draw too rigid a boundary between the groupings suggested above (in Section 3.1.2). For, if the final two years of the French course are considered alone and without reference to the Classes de Seconde, it might be regarded as belonging to group (b) which was classified as "socially modified". Such a view, however, would do violence to the unity of the Second Cycle in the French organisation.

3.2.5 In Belgium, as in France, the upper cycle of secondary education is regarded as a three-year course. The geography syllabus in the Human Sciences section bears a good deal of similarity to the French course in its broad outlines though there are differences in detail. The first year deals with general, physical, social and economic geography. It includes some topics in cosmography not to be found in the preceding syllabuses; for example solar and sideral time and notions of parallax, magnitude, nebulae and galaxies in relation to stellar studies. The second year deals with great economic powers and countries of the third world. The first part includes the United Kingdom and Commonwealth, the United States and the USSR and its European sphere of influence. An area of choice then becomes available in five other regional studies. Thus, it is possible to study:

- the countries of Mediterranean Europe (except Italy) or the Arab world;
- Central Africa or Southern Africa;
- two countries or groups of countries in South America;
- the countries of the Far East (China, Japan, Indonesia);
- an optional study of Alpine countries or Scandinavian countries.

In this year, there is a final section on problems of industrialised and developing countries.

(The element of choice in some regional studies is a common feature of the Irish and of United Kingdom syllabuses.)

The terminal year is devoted to a detailed general and regional study of Belgium followed by studies of the member countries of the European Economic Community.

The requirements for practical work are similar to those of France but the desirability of field-work, to be carried out in six excursions, is firmly stressed.

3.2.6 The position in the United Kingdom is complicated by the presence of ten examination boards. Referring to the eight boards in England and Wales the report of the delegate to the 1971 meeting contains the following summary.

"The following are common elements in all the examinations.
Physical geography: the earth's crust; distribution of major land-forms; the effects upon land-forms of structure, rock types, folds, faults and igneous activity, weathering, rivers, sea, ice, wind and changes of sea level.
Weather and climate: the principles of climatic classification and the distribution of climatic regions; effects of climate on soils, natural vegetation and crops.

Oceans: the effects of oceans on climate and man's activities.
Human geography: agricultural and farming systems; industrial development; rural and urban settlement; population studies; transport and trade; technological change.
Regional geography is compulsory in seven boards and is an option with general human geography in the eighth. - Candidates are offered a choice of regional studies (a number of examples are quoted in the report). The regions vary from one board to another but they usually cover a large area. All boards require a good knowledge of the regional geography of Britain.
Techniques: all boards require candidates to be able to read and interpret Ordnance Survey maps on the scales of 1:63360 (soon to be replaced by 1:50000) and 1:25000, and some include questions on Land Utilisation maps. Questions may be set on meteorological maps. Candidates are expected to be familiar with elementary map-making and to be aware of the suitability and limitations of common map projections. Questions are set on the diagrammatic and cartographical representation of statistics and other data in geography. All boards expect candidates to be trained in field-work".

3.2.7 The four examples which have been described above, in spite of some differences of content, emphasis and application, indicate that there is a remarkable degree of similarity in the scope of the syllabuses with respect to physical, human and economic geography, a detailed study of the home land, regional studies of other countries and areas, and practical geography. This is the justification for grouping them together under the heading of "comprehensively-based" syllabuses.

b. Socially modified syllabuses

In the syllabuses of the previous section, physical geography appears as a distinctive section of the programme in its own right. In the syllabuses now being considered, though it is not neglected, it is treated largely as a necessary background to human geography. For example, the Danish syllabus limits the study of physical geography "to the extent necessary for the understanding of the natural conditions for human life and activities" and the Netherlands syllabus "to the extent that if affects social geography". This constitutes an important change of emphasis in that it renders unnecessary a detailed study of many of the slow and long-term processes which fashion the surface of the earth and cause its diverse climates; at the same time, it requires a knowledge of the results of these processes as expressed in the many environmental complexes provided by nature and the constraints and opportunities which they present to human activities. (As will be seen later, the Netherlands syllabus allows optional, but not compulsory, studies of physical geography in two of its sections.)

3.3.2 Before describing the syllabuses which follow, it is, perhaps, important to emphasise that a "socially modified" syllabus, as defined earlier in this chapter, is in no sense inferior to a "comprehensively-based" syllabus in the intellectual demands which it makes upon the students. Geography, as a subject, embraces many kinds of specialisation and application, and a less time-consuming study of one aspect permits a more detailed treatment of another.

3.3.3 The outline syllabuses presented by the Danish delegate sets out the different courses prescribed for different "lines" in the upper secondary school. In many respects, these courses are very similar in content, and only one course is quoted here - that followed by the linguistics/civics branch in the linguistic line.

A. First Gymnasium form of the linguistics line:-

i. Emphasis should be placed on instruction in cultural geography including, to the extent necessary for obtaining an understanding of the conditions of cultural geography, geomorphology and natural geography topics. Descriptions of population and occupational conditions in selected countries, within both industrial and developing countries, should be studied.

ii. Cultural geography: A thorough orientation in distribution and displacement of populations in modern society on a global basis should be given. The occupational description should concentrate on primary, secondary and tertiary occupations at different economic levels.

iii. Natural geography: An introduction to geomorphology, climatology and plant geography to the extent necessary for the understanding of the natural conditions for human life and activities should be given.

B. Second and third Gymnasium forms of the civics branch of the linguistic line:-

i. Emphasis should be placed on the economic, historical, political and technological development in industrial as well as in developing countries.

ii. A thorough improvement of the knowledge and understanding acquired in the first form of the Gymnasium should be endeavoured, particularly with regard to migrations and urbanisation, infra-structure of society and changes in occupational structures.

iii. The pupils should further be introduced to the main trends in world trade as an illustration of international economic relations.

iv. At least 25% of the time allowed for the study of the subject should be devoted to the study of topics, within cultural geography, of the pupil's own choice.

3.3.4 In the Netherlands, the same geography syllabus is followed in the classical and modern "grammar" schools (ie the Gymnasia and Athenea) as part of the curriculum leading to higher education. The syllabus provided by the Netherlands' delegate is as follows.

A. The oral examination comprises:-

i. problems of the social geography of the Kingdom of the Netherlands, partly in the light of Western European co-operation.

ii. The social geography of the United States of America and of the Union of Socialist Soviet Republics, and the physical environment to the extent that it affects social geography.

iii. The social geography of a prominent Western European country or region with special reference to topical problems.

iv. Problems of the social geography of one or more developing regions.

v. A topical subject taken from social or physical geography.

vi. A subject taken from social or physical geography or a country or region - studied independently by the candidate - that has not been dealt with in class in the fourth, fifth or sixth form.

B. The written examination comprises:-

i. Five subjects taken from the social geography of the Kingdom of the Netherlands, partly in the light of Western European co-operation.

ii. The social geography of the United States of America and of the Union of Socialist Soviet Republics, and the physical environment to the extent that it affects social geography.

The subjects referred to under B (i) are announced by the inspectors before the beginning of the school year preceding the school year in which they will figure on the timetable.

To exemplify the nature of the subjects chosen by the inspectors, the following list was extracted from the final report on the written examination for 1973.

i. Population problems in the Netherlands.

ii. Industrialisation.

iii. Is Surinam a developing country?

iv. The struggle for fresh water.

v. The Rhine mouth as part of the Randstad.

3.3.5 While the Danish and Dutch syllabuses differ in the treatment of the home country and the prescription of regional studies, they are both characterised by a concentration on social, cultural and economic aspects of geography. In some ways, they may be regarded as a bridge between the "comprehensively-based" courses which preceded them in this chapter and the interdisciplinary courses described in the following sections. There is, however, a major difference. In Denmark and the Netherlands, geography still retains its separate identity as a subject. In Sweden and the Federal Republic of Germany, geography finds a place in the upper secondary school only in an interdisciplinary context.

c. Integrated syllabuses

3.4.1 To clarify the situation as it now exists in the Federal Republic of Germany, the account which follows has been abstracted from the detailed paper submitted by the delegate from that country. He first explained that the interdisciplinary subject "Gemeinschaftskunde" was recommended as a compulsory subject for all the federal states by the Standing Conference of Ministers for Cultural Affairs which, in 1962, laid down the guidelines for the new course. History, geography, sociology and economics no longer have specific courses in the upper academic secondary school but all are united "to identify and explain problems of today and to prepare young people for their solution". Each subject contributes from its own domain, but they submit themselves to interdisciplinary tasks.

3.4.2 To separate the geographical content from the rest of the course would be difficult; in any case, to do so would distort the intention and scope of the scheme. The topics suggested by the Ministers for Cultural Affairs are enumerated below since they form the essential skeleton upon which subsequent curricular development has been shaped.

1. Formative political, economic and social forces and developments in Europe.

   i. The French Revolution and its consequences.

   ii. The Industrial Revolution and the reorganisation of society.

   iii. The idea of a national state.

   iv. Liberalism.

   v. Socialism.

   vi. Imperialism.

2. Totalitarian ideologies and their forms of government.

   i. The Russian Revolution and its consequences.

   ii. The Bolshevist philosophy of state and society.

   iii. Fascist movements.

   iv. National Socialism.

The geographical aspect is more dominant in the following topics as compared to the ones mentioned above.

3. Germany - its position in Europe and its relationship to the world.

4. Europe in the world of today.

5. Europeanisation and de-europeanisation of the world - developing countries.

6. Man within society, economy and state.

7. One world - a way to secure world peace.

Apart from more historically and sociologically orientated problems, questions are to be dealt with in this context which presuppose geographical knowledge and the ability to see connections between political and economic developments and geographical conditions, for example:-

the Oder-Neisse Line;

Germany and the European question;

Germany and her Eastern neighbours;

Germany and the world powers (political and economic);

Peoples and territories of the Europe of today;

The problem of national borders;

European movement - the Council of Europe;

European economic communities;

Power-groupings in Europe and the world;

Liquidation of colonial empires;

Problems of industrialisation, nationalisation, democratisation;

Developing countries - examples from different geographical and cultural regions;

Developing countries in the theatre of world politics;

Village, city, urbanisation - town and country planning;

Refugee problems in all parts of the world - expulsion and forced resettlement.

3.4.3 The paper presented by the delegate from the Federal Republic of Germany recounted some of the arguments which had been adduced in support of the policy of reforming "traditional" geography in the lower school and replacing it by "Gemeinschaftskunde" in the upper. They bear a marked similarity to arguments which have been raised in other European countries for a restatement of the aims of geography teaching and a refashioning of its objectives and methods, and which have led to the steady evolution of the "new geography", as it is sometimes called, emphasising a more rigorous analysis of the human factors in geography and greater concern for current problems. The motivation for change in the Federal Republic of Germany (as in Sweden) is thus seen to spring from a widespread movement to re-define the purpose and practice of geographical education. The main difference lies in the solutions which have been proposed. Where some countries, including those whose syllabuses have been dealt with earlier in this chapter, are seeking to incorporate many of the developments in university geography into revitalised programmes for schools, others have chosen the path of inter-disciplinary studies to achieve their ends. The syllabus for the Federal Republic of Germany contains a good deal of recognisably geographical knowledge. Whether it continues to promote a progressive development of the study of geographical concepts and a growing mastery of geographical techniques would depend on the way in which the teaching was conducted. There is, however, a total absence of specific reference to physical geography. In this respect, the syllabus of the Federal Republic of Germany differs from that of Sweden.

3.4.4 To discover the main trend of geographical education in the Swedish gymnasium, it is necessary to refer to two quite separate programmes of work - the one concerned with natural science and the other with civics.

The natural science programme of the first year is divided into items, some of which fall within the domain of physical science, some in chemical science, and others in earth science. Some items, however, contain a mixture. For example, one item includes the following topics under the general heading of "waves":-

Elastic deformations and oscillations.

Harmonious oscillations and water waves.

Waves, breakers and currents and their transforming activity on coastal landscapes.

General principles of wave motion.

Generally speaking the topics which are usually dealt with in geography textbooks are grouped in distinctive items. Thus, there is an item entitled "the planet Earth and the principal features of its structure":-

The Earth's place and movements in the universe, its form, size and atmosphere.

The Earth's crust (the structure of the lithosphere).

Main features of landscape forms.

The cartographic representation of the Earth and parts of its surface.

Another item - "Exogenous processes on the Earth's surface" includes the following topics:-

Fluvial processes and forms.

Aeolian processes.

Glaciers. Glacial erosion and accumulation forms.

Mass movements and landslides.

Sedimentation, soil types and the formation of sedimentary rocks.

The inclusion of soil types - normally regarded as a bio-chemical topic - in an item which is otherwise solely concerned with physical processes may strike an incongruous note. Nevertheless, this important topic is not neglected in this particular physical context.

Other topics deal with the origin of the continents; continental drift; the orogenic processes and metamorphism; the geology of Sweden; atmospheric processes; climates; climatic classifications and vegetation zones; the climate of Sweden; ocean currents; the hydrological cycle; sources of energy on earth (coal, oil and hydro-electric energy), their localisation and uses; and chemical weathering and the resultant land-forms. Soil types (their distribution and importance to agriculture) appears a second time linked with soil formation. There is a final section headed "Man and Nature" with the following topics:

Man's growing exploitation of nature and its resources.

Unwished-for consequences of man's exploitation of nature.

Despoliation of the landscape through quarrying and gravel pits, soil erosion, lowering of the ground water level, water- and air-pollution.

Nature as a means of recreation. Landscape conservation.

In summary, it may be said that most of the topics which are included in a conventional course of physical geography in other countries, find a place in the Swedish Natural Science course.

The Swedish Civics programme is described in a lengthy document which cannot be quoted in detail. A key paragraph in the general view of subject matter reads thus: "Social life is considered from the geographical, economic, political and social aspects. The aim is not, however, to describe and analyse society in such a way that each of these aspects is isolated. The subject matter must form an integral whole. No strict line of demarcation is to be drawn between the geographical, economic and sociological aspects". There is, nevertheless, a marked geographical bias in a number of sections dealing with population, agriculture, industry, sources of energy and raw materials, localisation of industry, international trade, settlement, and town and country planning. There are, too, sections devoted to population studies in Sweden, current trends in Sweden's economy and regional surveys which afford "more detailed study of conditions of production in some countries with special reference to population, resources for production, social organisation and economic systems, investments and political conditions". A good deal of human (social and economic) geography thus finds a place in the civics programme.

3.4.5 Regional studies. Both the Federal German and the Swedish programmes suggest that something akin to regional studies may be carried out, but, without further elaboration, it would not be possible to assess their form and content in comparison with regional studies conducted in a uni-disciplinary geography course. Fortunately, the paper from the Federal Republic included an example, which is quoted here at length, under the heading "Individual knowledge of countries":

> "Each of the countries chosen is to be dealt with as an area in its own right. The aim is to have a concept of the country as a whole and as a working structure. For this, the following division is recommended.
>
> i. the most important topographical regions;
>
> ii. the natural environmental factors;
>
> iii. historical background;
>
> iv. structures in economy and society and their development.
>
> A synthesis of the country should form the conclusion of this teaching unit with a problem for its theme which is important for the country, eg which important natural or cultural factors have a positive or negative influence on the development of the country? What tensions arise from the traditional forms of life and economic policy and the demands of a modern economy orientated towards the world market?

Example for study of a country: the Indian sub-continent.

i. Topographical regions.

Irrigation and drainage in Sind (West Pakistan):

- traditional forms of irrigation; the yearly pattern of the Indus regime; waterlogged plains, the huge dams, expansion of usable areas for agriculture and the increased yield; wheat and cotton; problems of salination; drainage with high costs.

Agriculture in dry South-East India:

- seasonal drought and tank irrigation; two- and three-fold harvest in most intensive farming; peasant farming and smallholding, poverty, prejudices against intensive cattle-rearing; problems of the transition to modern farming techniques.

Economic and political limits in the Ganges-Brahmaputra delta:

- over-population and land shortage, food shortage; cultivation of rice and jute; severing of economic relations by political division of Bengal; economic and political problems.

ii. Principles and structures.

Monsoon:

- atmospheric circulation in the regions of the Tropics; movements of the inter-tropical convergence over India; monsoon and trade winds; the importance of the monsoon for the sub-continent.

Population and languages:

- races and tribes; folk migrations in early history; multiplicity of languages, ethnic conflicts, religious and political conflicts; problems of business language.

Existence of castes and religions:

- development of castes; their social and economic significance; difficulties of surmounting these; Hinduism and Islam, religious and political conflicts.

Indian colonial history and its importance for both states of the sub-continent:

- four phases of British rule, development and stagnation, adoption of British forms of administration, education and army; English as a general business language.

Union of India and Pakistan:

- reasons behind the political division of the sub-continent; Hindus and Moslems; division of an economic and business region; refugee problems; conflicts between states and recent rapprochement.

iii. Development.

Development in agriculture (a case study - Jalgaon, a village in the Deccan):

- population, development and food problems; starvation regions; social and cultural factors hindering development; Jalgaon as an example of surmounting them.

Industrialisation and its influence on the spiritual and cultural development of traditional societies (Raurkela as a case study):

- setting up of industry in one of the economically most backward areas of the country; ethnic conflicts; problems of initial training and integration; absorption of surplus rural manpower; increased income, raising of social standard; receptivity towards innovation in agriculture.

iv. Synthesis.

- problems and functions; tensions between traditional way of life and modern development taking the example of land reforms; agglomeration of population and poverty taking the example of Calcutta; the functions of state and society."

3.4.6 A teacher of geography would find little in this somewhat detailed account of a study unit that he would wish to omit from a regional study of the Indian sub-continent. He would probably wish to elaborate the physical background and the treatment of agriculture and industry, and deal with settlement patterns and communications. But, in general, the example quoted above, together with the preceding accounts of the Swedish and Federal German courses, indicate that a large measure of reconciliation is possible between geography as taught in an inter-disciplinary context and as a separate subject.

3.4.7 Before concluding this section on integrated studies, reference must be made to some experimental syllabuses in other countries which fall into the same category. In Belgium, a new syllabus, which was being followed in 24 schools only at the time of submission of material for this volume, was called "Human Science". It combines history, geography and social science, each subject receiving one hour per week. The principal theme of this course is "Man and the great geographical problems of our time". The geographical contribution to the course is well defined both as to its methodology and the list of problems to be studied. The methodology recommends that learning should proceed from observation of concrete examples, via extension to non-observed phenomena, and attempt at generalisation and definition of operational structures, to illustration and applications (verifications of theories and synthesis). The list of problems for study is too long to quote in detail, but it includes such fundamental questions as the structure and functions of urban areas, the transformation of rural areas, regional disparities and levels of development, economic equilibrium and the rational management of territory. The course, thus, includes ideas which are in the forefront of modern developments in geography. In a somewhat different category are several experimental syllabuses which have recently been made available in England by some of the examination boards, labelled "Environmental Studies". These tend to combine biological and geographical material with some economics and social science. It is, as yet, too early to predict whether these new courses will make any substantial inroads on the popularity of geography as an advanced subject in the upper secondary schools.

3.5.1 d. Partial syllabuses

As explained earlier, this heading has been applied to courses which are termed "geography" but which offer the students a comparatively limited range of studies. The narrowness of the courses may be ascribed to various reasons such as a shortage of time for the subject, a shortage of well-trained geography teachers, or the low status of the subject in the country concerned. Since factors such as these are causally interlinked, it is more likely to be a combination of reasons which is to blame. In the examples which follow, some reference is made to the general circumstances surrounding the teaching of geography.

3.5.2 Italy

Secondary school courses in Italy, which extend over the five-year period for students between 14 and 19 years of age, can be followed in several kinds of technical school, the "Normal" schools, and grammar schools. In the former two categories, the geography courses are more extensive than in the last, but it is with the grammar schools that this volume is concerned. In the "lycée scientifique", geography is dropped after one year (at 15 years of age) and in the "lycée gymnase" after two years (at 16 years of age). In both schools, however, there is a one-year course, taken in the final year, in general geography. It has a time allowance of two hours a week and the teaching is conducted by science teachers. The course is essentially concerned with mathematical and physical geography. Among the astronomical studies are topics - such as the celestial poles and equator, right ascension and declination, azimuths of stars, magnitudes of stars (real and apparent) - which, though of scientific interest, would generally be considered to bear little or no relationship to modern geography in schools. The same comment might be applied to several other topics such as the precession of the equinoxes and nutation. Much of the rest of the syllabus has the form of a traditional course in physical geography, but its isolation from human geography gives it the appearance of an academic cul-de-sac such as might be designed in the absence of a monitoring body of well-qualified geography teachers.

3.5.3 Norway

The position of Norway is complicated by the presence of two forms of the upper cycle of secondary education - the three-year gymnasium and the four-year gymnasium. In both types, geography is not taught as a separate subject in the last two years, but, if the upper cycle is to be regarded as a single stage of education, geography must be included in the curriculum, even though it appears for one year only in the three-year course and two years only in the four-year course. The syllabus in the one-year course is wholly concerned with aspects of Norwegian geography including geology, minerals, soils, oceanography of the Norwegian sea and the main characteristics and processes of the Norwegian climate. "On this basis is presented a review of Norway's natural resources in the sea and on the land; flora and fauna, minerals and rocks, the waterfalls and associated industries. The Norwegian economy should be given considerable attention within the time available" - "In conjunction with topography the students should get a broader knowledge of the topographical survey of Norway and be taught map-reading of selected sheets; the students should understand the map symbols and altitude notations, they should interpret the shape of the terrain, describe road network and settlements, factories, forests, bogs and other details and conduct measurements on the map". There is also an introduction to some important parts of mathematical geography arising from the size and shape of the earth, and its movements with respect to the moon and sun.

This, however, is not the end of geography teaching for all the students. Those who pursue the natural science line have, in their final year, one weekly period devoted to mathematical geography, which is taught by the mathematics or physics teacher of the class. Part of the syllabus corresponds fairly closely with similar sections to be found in other countries and part has a strong bias towards navigation.

3.5.4 Greece

The final cycle in the gymnasium runs for a period of three years, and geography is taught in the fourth grade, that is for the first year only. The geography syllabus for this year has the appearance of a wide coverage of physical geography (including geology and mineralogy) and human geography, dealing with studies of population, cultures, a number of aspects of economic geography, and a study of the national economy of Greece and its relations with the international market and the European Economic Community. When, however, it is considered that only one hour a week is available for this syllabus and that the teachers are graduates in natural science and physics who, according to Professor J Tricart's report (1), have no specialised training in geography, it is clear that the syllabus can only be dealt with in a superficial manner.

3.5.5 Luxembourg

Shortage of time is also a crucial element in Luxembourg. Geography only appears in the first year of the upper secondary school programme, where it is available in one of the four courses of the classical curriculum and one of the four in the modern curriculum. As in Greece, there is only one hour per week, devoted to the following programme:-

> A reasoned knowledge of the contemporary world; the study of major human and economic problems as examplified in the principal economic and social powers; comparative studies of the USA, USSR, China, Japan, India; economic groupings of states at different scales - Benelux, the European Community, Comecon. Interpretation of geographical documents - current documentary sources, particularly those concerning the Grand Duchy.

3.6.1 It has not been possible to include the syllabus of geography for every one of the member states in this review. For some countries, the detailed syllabuses were not submitted, particularly those countries where very recent changes have taken place or are proposed. For example, in Switzerland, where the educational systems of the 25 cantons differ very much, the Swiss Association of Geography Teachers has recently formulated proposals for a revised geography examination of a fairly comprehensive nature. Similarly, in Iceland, the place of geography in upper secondary education and the geography syllabus are being re-evaluated.

3.6.2 Some important conclusions emerge from this general survey of geography syllabuses.

a. Comprehensively-based syllabuses ensure that none of the traditional branches of the subject - physical, human, mathematical, practical (with their various sub-divisions) and regional - is neglected. They, thus, lay a broad foundation for more advanced studies at institutions of higher education for students who choose to continue their studies of geography. They do not, however, automatically give rise to integrating themes, and their social value depends on the deliberate manipulation of regional or applied studies to demonstrate to the students the interlocking nature of geography's separate parts in promoting a soundly based understanding of many problems in the modern world.

(1) The Teaching of Geography at University Level. Council of Europe/Harrap 1969.

b. Socially-orientated schemes may alter the balance of time and emphasis given to each of the separate sub-divisions of the subject, and thus call for vigilance on the part of teachers to ensure that important ideas, knowledge and techniques are not omitted from the course. By the thematic nature of their approach, however, they are designed to demonstrate the manner in which the diverse elements of the geographical repertoire are made to converge upon the understanding of complex environmental situations and the solution of socio-physical problems.

c. Integrated courses are not dedicated to the preservation of any particular subject discipline, but, from the examples quoted in the chapter, it is clear that a body of determined teachers, while fulfilling both the spirit and the letter of integration, can at the same time continue to promote many aspects of geographical education on a broad front and in some depth. It is important for the future of geography at university level that the terms of reference of integrated courses should not preclude substantial basic training in the disciplines which are integrated.

d. None of the categories of courses can claim a monopoly of enrichment that comes from the ready acceptance and incorporation of new thinking in geography into current syllabuses. At this stage in time, when the trends of new geography in schools are still being defined, it is possible to have a "comprehensively-based" course which resists modernisation and an integrated course which employs some of the newest geographical ideas and techniques. The reverse is also true.

e. Finally, there are a number of countries in which the syllabuses in the upper secondary school are so restricted or fragmentary, and the available time so small, that the standards attainable in the subject cannot but fall well below those achieved in countries where geography is more generously treated.

## CHAPTER 4

## RESOURCES AND METHODS

4.1.1 The availability of resources for teaching and learning, and the kinds of teaching methods which are most commonly used, are closely interlinked. A teacher faced with a large class sitting at rows of desks which virtually fill the classroom, and with no resources apart from a chalk-board, some wall maps and a set of out-of-date textbooks, has little room for manoeuvre in the methods he employs. He is almost compelled to accept the role of a lecturer; and, when he has enlivened his lectures with the skilful use of chalk-board and maps, interspersed his presentation with well-judged questioning, and trained his students to compile their own summaries of lessons, he has almost exhausted the range of educational practices permitted by the circumstances. At the other end of the scale, a teacher enjoying the facilities of a well-equipped and spacious geography room may not only vary the style of his presentation by using many kinds of visual aids, maps and models, but may also arrange learning tasks for groups and individuals using specially prepared work-sheets, maps, statistics and books. By means of "reporting-back" procedures, the students may present the results of their studies to the whole class, the teacher acting as organiser and collator of the different contributions, expanding ideas which have not been fully elaborated by the students, and correcting erroneous assumptions and conclusions. Thus the presence of good resources makes possible, and even encourages, variety in the styles of teaching and learning.

4.1.2 On the other hand, teachers, who are dissatisfied with a limited range of choices in established methods of teaching and wish to embark on new techniques, may create a demand for better teaching facilities to support proposed new methods. If, for example, teachers find that textbook generalisations fail to convey to the students a meaningful picture of distant environments and societies they campaign for good visual aids and well-structured case-study material. In this case, it is the desire for better methods which eventually leads to improved resources. There is not, however, a free market in resources and methods. Just as the supply of resources may be limited by finance, so too the range of methods employed may be limited by prevailing custom and by training.

4.1.3 But resources are not confined to material aids. The time which is allocated to geography may also be regarded as a resource. A generous time allowance coupled with a reasonable supply of equipment will permit more scholarly achievements over a wider range of geographical topics than a niggardly time allowance with elaborate equipment. Similarly, the size of teaching groups may strongly influence teaching methods. The smaller the teaching groups, the greater the amount of individual tuition the teacher may give to his students. Thus, the personal advantage to students tends to vary inversely as the size of the teaching groups. For the purposes of this chapter, resources have been broadly interpreted to include some analysis of time allocations and teacher/student ratios.

### 4.2.1 Physical resources

An earlier survey conducted under the auspices of the Council of Europe (1) recorded the situation, as it existed about eight years ago, across the whole field of geography teaching in primary and secondary schools. Sections of the survey were devoted to the general physical resources available for teaching geography. For the purposes of the present more limited survey, concerned

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(1)E C Marchant (Ed): The Teaching of Geography at School Level: Council of Europe/Harrap 1971.

solely with the upper academic levels of geography teaching, a selective list of resources was investigated rather than a detailed catalogue of all the specialist items used by geography teachers. The results are recorded in Table 5 and summarised visually in Diagram 8. It should be remembered that the entries for Spain, insofar as they affect the upper secondary school, refer to proposed changes which were to be initiated from 1972 onwards. This proviso refers also to teaching methods (see Section 2.5.4 of this report).

4.2.2 Specialist geography rooms: Of the thirteen countries which dealt with this item in the 1971 questionnaire, eight reported that specialist geography rooms were to be found in most or all of the types of school concerned, and one other country that they were found in a good many schools. It does not follow that the remaining countries were poorly equipped for teaching the subject, since rooms used for several subjects or for inter-disciplinary work might still possess good teaching resources, particularly those like visual aids and duplicating facilities which have a general as well as a specialist usefulness. There are certainly some advantages if geography teachers are able to furnish, equip and organise their rooms without making concessions to teachers of other subjects which might require a different arrangement of furniture, and a share of wall-display areas and storage. If, on the other hand, geography teachers are compelled to move from room to room, there are considerable disadvantages since much of the support material for the subject - such as small-scale maps, specimens, solid models and reference books - cannot easily be conveyed even with the aid of trolleys. Geography rooms usually call for special furniture; a student may need to work with a large map-sheet or an atlas or reference books as well as a notebook and different kinds of graph paper; a large flat-topped table, even if shared by two students, is preferable to an ordinary desk with a small working surface. The more elaborate and particularised the equipment, the greater is the need for specialist rooms. For example, in the United Kingdom, spacious rooms of some 90 square metres in floor area are recommended by teachers as essential to accommodate the impedimenta and to permit the full range of activities commonly associated with the subject. However, geography rooms tend to reflect current teaching practices in each country, and it would be meaningless to attempt to compare in detail the ideal geography room of one country with that of another. The important point is that, in some countries, geography has achieved recognition as a subject with highly distinctive requirements, while, in others, most of its requirements are regarded as somewhat generalised.

4.2.3 The sections which follow deal with six main groups of resources:

i. globes, charts and maps;

ii. projectors which enable still-pictures, cine-film and other visual material to be presented to the class;

iii. some other audio-visual aids, notably those associated with sound-radio and television;

iv. reprographic devices which teachers use to produce multi-copies of material for use by students;

v. library facilities;

vi. some mathematical aids.

TABLE 5

Resources for teaching and learning

Frequency of availability (estimated)

(A: in all schools
(B: in most schools
(C: in a good many schools
(D: in a few schools
(E: in no schools

| Resources | Austria | Belgium | Cyprus | Denmark | Fed.Rep. of Germany | Finland | France | Greece | Iceland | Ireland | Italy | Luxembourg | Netherlands | Norway | Spain | Sweden | Switzerland | United Kingdom |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A specialist geography room | D | A | D | A | * | C | B | * | E | B | * | B | A | D | * | * | B | A |
| Film strip/slide projector | A | A | D | A | A/B | C | B | A/B | A | A | D/E | A | A | B | A/B | A/B | A | A |
| Cine projector | A | B | D | A | A/B | C | C | C | A | C | D/E | A | C | B | A/B | A/B | A | B |
| Overhead projector | B | C | D | A | A/B | B | D | D/E | A | B | D/E | A | C | C | C | A/B | A | B |
| Radio | A | C | D | A | A/B | B | C | D/E | E | A | E | D | C | A | D/E | D/E | D | A |
| Television | A | C | D | D | A/B | C | C | C | E | A | E | C | C | D | A/B | C | C | A |
| Tape-recorder | B | C | D | A | A/B | C | C | D/E | A | A | E | D | B | B | D/E | D/E | A | B |
| Video-tape recorder | D | D | E | D | A/B | C | D | C | E | D | E | D | D | D | E | E | D | D |
| Episcope | A | B | D | A | A/B | A | D | A/B | D | C | D/E | B | C | C | D/E | A/B | B | B |
| Wall-maps, charts, globes | A | A | D | A | A/B | A | A | A/B | A | A | C | A | A | A | A/B | A/B | A | A |
| Duplicating facilities: Spirit duplicator | A | D | D | A | A/B | A | B | D/E | A | B | E | B | A | A | A/B | A/B | A | B |
| Duplicating facilities: Ink duplicator | B | C | D | E | A/B | B | B | D/E | A | B | E | A | A | D | C | C | B | B |
| Duplicating facilities: Stencil cutter | B | C | D | A | A/B | C | B | D/E | B | C | E | A | A | D | D/E | C | B | D |
| Duplicating facilities: Photocopier | C | D | D | A | A/B | B | C | D/E | B | D | E | A | B | C | D/E | A/B | A | C |
| Library facilities in school | B | A | D | A | A/B | A | C | A/B | B | C | A/B | A | A | D | A/B | C | B | A |
| Calculating machines: mechanical | D | C | D | E | | B | D | | B | D | | B | C | E | | | C | C |
| Calculating machines: electronic | E | D | D | E | | C | D | | B | E | | B | C | E | | | D | C |

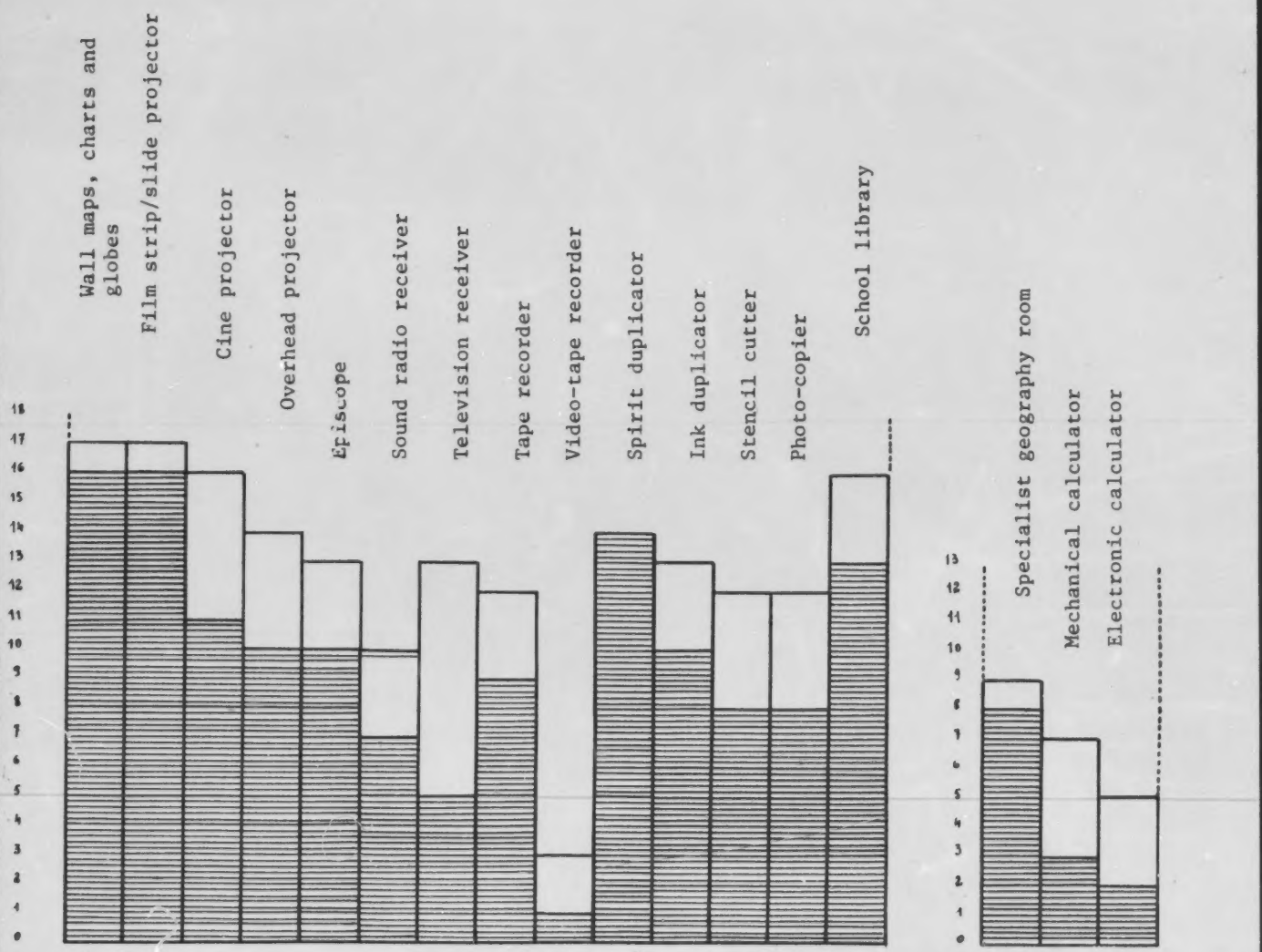
* Entries in these columns have been derived from the earlier questionnaire which:

a. did not include enquiries about the existence of specialist geography rooms or calculating machines (mechanical and electronic);

and b. graded frequency of availability on a three-point scale only. In an effort to retain consistency throughout the table, A/B on the five-point scale has been used to indicate A on the three-point scale; similarly D/E indicates an entry of C on the three-point scale. An entry of E shows that the return indicated an overall absence of the item.

Diagram 8

Estimated frequency of the availability of the resources for teaching and learning indicated at the head of each column




Analysis for 18 countries

Analysis for 13 countries

The diagrams show the number of countries in which the resources indicated are estimated to be available in:

a. all or most schools - shaded area
and b. a fair number of schools - unshaded area.

These are not the only resources for which some assessment of availability is to be found in this report, though the conclusions are arrived at by inference rather than directly. Table 2 and Diagram 5 (with the accompanying text), which deal with skills and techniques, record the great importance afforded to training in the use of statistical tables, the relatively small support for training in soil-testing, surveying and the use of hardware models, and the intermediate position of meteorological investigation. It may be reasonably inferred that statistical resources are available in nearly all countries and that the other associated resources occur roughly in proportion to the importance attached to their use. Similarly, it may be deduced from Table 6 and Diagram 9 that programmed learning material has virtually no place in the list of resources for any country.

4.2.4 Wall-maps, charts and globes: these are the stock-in-trade of the geography teacher and are almost universally present in the schools. It is only in Cyprus, with its special problems, that they are comparatively rare. Even in Italy, with its restricted geography programme, they are found in a good many schools. Many excellent series of wall-maps are produced in Europe depicting geology, physical features, soils, vegetation, various aspects of population, political divisions and climatic and economic data. Globes are necessary for certain aspects of mathematical geography and as a corrective to the distortions of shape, area, distance and direction associated with map projections. They have gained an added significance with the development of long-distance air travel using great circle routes, and satellite communications. Wall-maps, charts and globes are invaluable for lessons with a large group when the teacher wishes to focus the attention of all the students simultaneously on particular features.

4.2.5 Projectors: the use of pictures has increased with the demand for realism in geography teaching, and improvements in photography and optical technology have placed several valuable means of projection in the hands of teachers. In addition to photographs of people and environments, diagrammatic material may also be projected. For example, it is possible to have a film explaining latitude and longitude, or the workings of a volcano, by means of still or animated diagrams. Indeed, many geographical films intersperse maps and diagrams with pictures of real things and events. Film strip and film slide projectors rank as highly as wall-charts and globes in the frequency of their availability. They are relatively inexpensive and allow the teacher to prolong the study of any particular frame as long as is necessary. Cine projectors, though more expensive and complicated to handle, are also widely available in all but two countries. Their ability to portray processes and movement, and to accompany sound with vision, gives them a somewhat different function from the still picture. The episcope possesses the immense advantage of being able to project a picture, a diagram and even the printed word direct from the page of a book or periodical. Although it is a relatively cumbersome machine and makes much more stringent demands for black-out than other projectors, it still retains a fairly high degree of popularity. The overhead projector, a much more recent machine than the others, is widely available in all but four of the 18 countries. In many situations, it may be used as a substitute for the chalk-board, but it is a much more flexible instrument. By means of successive overlays to a base map or diagram, it is possible to build up complicated maps and visual models (eg Lösch's models in Central Place theory) and to reconstitute the elements in different ways to demonstrate different sets of relationships, in a manner which would not be possible with a chalk-board. It is gratifying to record that there are few countries in which geography teachers do not have recourse to these valuable visual aids.

4.2.6 Other audio-visual aids: two of the most useful teaching aids are sound radio and television. While film is sometimes retained so long that is loses topicality and in some respects becomes out of date, broadcast lessons are (or ought to be) up to date in both outlook and information. On the whole, geography teachers cannot make much use of popular broadcast material such as news items or travel documentaries unless the students have plenty of time to sort out the geographical values from other kinds of reporting. Geography lessons for broadcast purposes need to be prepared by expert geographers with clearly defined objectives which are recognisable at the receiving end. This requires a properly organised educational broadcasting system. Though there are one or two exceptions, it is, on the whole, the countries which do not have a substantial geography syllabus at an advanced level which do not have the support of sound-radio and television. This is entirely logical. There would be little point in producing high-powered geographical broadcast material for the upper academic levels if few students were involved or the course had little depth or balance. Sound-radio is available on a good scale in ten out of the eighteen countries, but television is available in thirteen - thus stressing the importance of visual presentation in the subject.

In countries where the school timetables are generally not synchronised with broadcast lessons or closed-circuit television programmes, it is an advantage if a sound-radio lesson can be stored on a tape-recorder, or a television lesson on a video-tape recorder, for later use by one or more classes. The video-tape recorder, which is an expensive piece of apparatus, appears to be widely available only in the Federal Republic of Germany, though it is available on a less generous scale in other countries. Tape recorders, which are much more common, have more uses, largely because of their portability. They are increasingly being used as a substitute for a notebook, recording statements made by teachers, students and other persons in the school or during outdoor work, which can be played back at a more convenient time for making written digests or as a basis for discussion.

While there are more countries which have a good supply of projection equipment than there are with a good supply of the other audio-visual aids mentioned in this section, it is noteworthy that countries which rank low in possessing the former also rank low in possessing the latter. Thus, countries like Cyprus and Italy are doubly disadvantaged over the whole of the audio-visual field. Some countries, like Iceland, Spain and Sweden, which recorded weakness in one sector have compensating strengths in the other.

4.2.7 Duplicating facilities: once geography teachers had broken away from the narrow view of the subject arising from strict adherence to textbooks they increasingly turned to the use of specially prepared materials to suit their needs. They were among the first subject specialists to make frequent use of duplicated work-sheets, generally incorporating maps, diagrams, statistics and written information. A number of reasons may be adduced to explain this large output of duplicated materials.

i. Textbooks often have to be retained, for reasons of economy, when some of the maps and information which they contain should be brought up to date. Teachers often produce supplementary sheets for this purpose.

ii. The total amoung of information which is useful to the geographer has been expanding year by year at an alarming rate. To deal with the "data explosion", the teacher must now select his inputs of subject matter from an embarrassingly rich supply of sources and prepare them in a way which is economical of his students' time.

iii. A teacher often wishes to assemble material (eg climatic or economic statistics) in ways which are different from those which appear in textbooks or reference books.

iv. In making full use of the local region, the teacher may need to prepare materials in an orderly way which do not appear in published form.

v. To illustrate certain principles or concepts, the teacher is often free to choose from a vast range of possible areas or examples. There is, thus, room for a great deal of individual preference.

There are two main classes of duplicating process. In the first, namely spirit and ink duplicators, the teacher has to prepare the base stencils from which multi-copies are made. Although this process may consume a great deal of time, it is the only way in which teachers may produce idiosyncratic material. Spirit duplicators permit several colours to be used in a single sheet - a considerable advantage over ink duplicators when complex maps have to be drawn or other data grouped in ways which are more readily identifiable by the use of several colours. Ink duplicators, however, have the advantage of cheapness. Both processes are normally done with rotary machines.

Photostatic machines and electronic duplicators both reproduce text, diagrams, maps and original photographs, and can be used to provide copies of published material (subject to copyright laws). They can, of course, be used to reproduce teacher-made materials but, owing to the comparatively high cost, most teachers would be inclined to use a spirit or ink duplicator where suitable. The reports indicate that stencil cutters and photocopiers are available in all or most schools in eight of the eighteen countries, and are to be found in a good many schools in a further four countries. Ink and spirit duplicators are rather more common, the latter, with its special advantages, being widely available in all but four of the countries.

Apart from wall-maps, charts and globes, the items analysed thus far have consisted of mechanical, electric and electronic aids, most of which are now widely present in a majority of the member states. There are a few countries in which shortage of apparatus under one heading are accompanied by shortages under a number of other headings. Geography teachers, thus, suffer a cumulative disadvantage in these countries, all of which lie in Southern Europe.

4.2.8 School libraries: these may take the form of a centralised collection in a designated library room, departmental collections held by each subject department or faculty, or a combination of the two. Geography at the higher levels in schools has long moved beyond the stage where its reading requirements can be met by a few textbooks. There are now so many suitable books written by experts in the many branches of geography, and so many reference works which the serious student should be able to consult, that it is difficult to conceive of a higher level course being conducted in a satisfactory manner without good library support. As well as the normal book supply, this support should include journals and periodicals which are devoted wholly or in part to the subject. In general, as Diagram 8 shows, geography teaching is well served by school library facilities, with only two countries recording unsatisfactory provision and thirteen very good.

4.2.9 Mathematical aids: only two specific items were investigated - mechanical and electronic calculators. Until recently, most of the mathematical needs of geography students have been met by established aids such as mathematical tables (eg tables of logarithms, squares, square roots and trigonometrical functions), slide rules and drawing instruments. Some of the quantitative methods which are now

finding their way into schools, particularly those which use statistics, involve tedious arithmetical processes which are often viewed with disfavour because they take much time and can be discouraging to students. Much of the drudgery is, however, removed if students are proficient in the use of calculating machines. Just when mechanical calculators were coming to be accepted in some quarters as a normal feature of school equipment, the advent of comparatively inexpensive electronic calculators began to render them obsolete. The former are durable and can produce fairly rapid results in repeated addition and subtraction and in simple multiplication. But electronic calculators are easier to handle, can be used to carry out a much larger range of operations, and produce results very quickly. Of the thirteen countries which reported on these aids, only three recorded that mechanical calculators were available in all or most schools and a further four that they were to be found in a fair number of schools. The corresponding figures for electronic calculators were only two and three respectively. The comparatively low incidence of these teaching aids corresponds with the lowly place occupied by selected statistical techniques in the teaching objectives shown in Diagram 5.

Other material factors

4.3.1 Time: Table 6 records information provided by delegates from thirteen countries. There are four main items: the amount of time allocated each week for lessons, the amount for private study, the number of weeks in the school year, and the duration of the course. It is arguable whether lesson time and private study time are equivalent in value for the purposes of learning. Lesson time, which is under the professional guidance of teachers, might generally be regarded as more efficiently organised for learning than private study time. But teacher-directed time and student-directed time, even though they might be aimed towards the same goals, have somewhat different different educational purposes, since it is in the latter that the student may have to solve problems and make decisions without the possibility of resort to the teacher if difficulties arise. Some teachers make use of this enforced independence to help students to mature by presenting them with tasks which make heavy demands on their powers of thinking and judgement. Others prefer to deal with all difficult situations initially in class and to use private study as an extension and consolidation of work done under supervision. Most teachers would regard teaching and private study as complementary processes. In Diagram 9, lesson time and private study time are shown separately, but since there is no way in which their comparative values may be estimated, quantitative equivalence has been assumed and they have been represented on the same scale. A few countries (eg Luxembourg, Iceland and Ireland) give more time to private study than to lessons. At the other end of the scale, Denmark records no time for private study, and the Netherlands makes a comparatively small allowance in relation to lesson time. An average for the thirteen countries shows that private study time is slightly more than half of lesson time, but in this specific context it is doubtful whether the averages are meaningful.

4.3.2 With respect to the number of weeks in the school year, it will be seen from Table 6 that the thirteen countries divide themselves into two groups. There are nine countries with about 35 to 40 weeks in the school year, and four with 25 to 28 weeks. This is a substantial difference which has a marked effect on the total time available for teaching and learning. The influence spreads across the whole curriculum and is not confined to geography. Nothing but radical changes of national policy can eliminate the differences between countries that arise from this single factor.

TABLE 6

Time allocations for geography; and teacher:pupil ratios

| | Weekly time allocations in hours | | | | Number of weeks in school year | Notional total no. of hours allocated to geography in final two years | | Approximate no. of students in a teaching group |
|---|---|---|---|---|---|---|---|---|
| | In Lessons | | In private study | | | In Lessons | In private study | |
| | Yr 1 | Yr 2 | Yr 1 | Yr 2 | | | | |
| Austria | 2 | 1 | 2 | - | 40 | 120 | 80 | 25 |
| Belgium | 1-2 | 1-2 | ½ | ½ | 25 | 50-100 | 25 | 20 |
| Cyprus | 1 | - | 1 | - | 25-28 | 25-28 | 25-28 | 30 |
| Denmark | 3 | 2-3 | - | - | 40 | 200-240 | - | 22 |
| Finland | 1 | - | ½ | - | 38 | 38 | 19 | 32 |
| France | 2 | 2 | 1 | 1 | 35 | 140 | 70 | 30 |
| Iceland | - | 2¼ | - | 5 | 28 | 63 | 140 | 30 |
| Ireland | 3 | 3 | 4 | 4 | 28 | 168 | 224 | 25 |
| Luxembourg | 1 | - | 2 | - | 35 | 35 | 70 | 25 |
| Netherlands | 3-4 | 3-4 | ½-¾ | ½-¾ | 40 | 240-320 | 40-60 | 25 |
| Norway | 3 | - | 2 | - | 37 | 111 | 74 | 27 |
| Switzerland | 1-2 | 1 | 1-2 | - | 39-42 | 80-160 | 40-80 | 50 |
| United Kingdom | 4-5 | 4-5 | 2-3 | 2-3 | 38-40 | 312-390 | 156-234 | 15 |

Notes

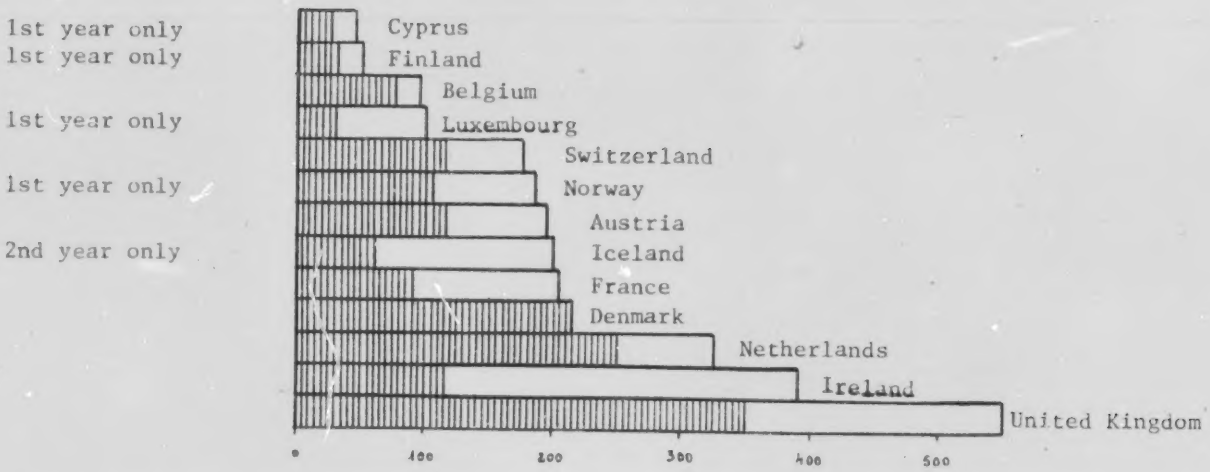
1. In order to compile the total notional number of hours over the last two years, the weekly allocations have been multiplied by the number of weeks in the school year.

2. For the purposes of Diagram 9, the notional total number of hours has been further simplified by substituting the median value instead of indicating the approximate upper and lower limits of time available. Thus, for example, Belgium is shown as having a total lesson time of 75 hours, Denmark - 220 hours; the Netherlands as having a total private study time of 50 hours and the United Kingdom of 195 hours.

Diagram 9

Notional number of hours allocated to geography
in the final two years of upper secondary education

Note 2, at the foot of Table 6, explains how the figures have been obtained which form the basis of this diagram. The diagram should not be regarded as offering a precise representation of time allocations. Its purpose is to show the approximate range of differences that exist among the 13 countries named.




a. The shaded areas represent estimated lesson time.

b. The unshaded areas represent estimated private study time.

c. The time is spread over two years in most countries. Where it is confined to one year this is indicated in the left-hand column.

4.3.3 Lastly, there is the length of the course to be considered. Eight of the thirteen countries have a course which extends for the whole of the last two years. In five countries, there is a one-year course only, but in Iceland and Norway the weekly time allowance for the single year is comparatively generous. To some extent, this reduces the comparative disadvantage from which the other three countries in this group suffer.

4.3.4 The notes appended to Table 6 and Diagram 9 explain the limitations of the diagram, which attempts to show how the time available for teaching geography in the final two years of secondary education varies among the countries named. It would be more realistic to regard the time allocations shown as typical of each country rather than as precise calculations. At one extremity lies the United Kingdom (excluding Scotland) in which very large weekly allocations are only possible because the curriculum for the student at this stage has normally narrowed to three main subjects with some general educational studies - a degree of school specialisation which is found nowhere else in Europe (1). The generosity of time in Ireland appears to be partly due to the large amount of private study expected of the student. At the other extreme are countries like Cyprus, Finland and Luxembourg whose low time allocations are combined with a one-year course, and Belgium which only occupies a low place in the table because of its short school year and the small amount of private study time. Looked at in the European context, the enormous advantage accruing to countries with a large amount of time for geography, and the considerable disadvantage suffered in countries with a meagre time allowance, constitute a serious obstacle to the establishment of inter-state norms. While a tightly defined international time allowance is neither possible, nor indeed necessary, it would seem that an acceptable range of total time available might lie in the zone that extends between Switzerland and the Netherlands as shown in Diagram 9.

4.3.5 Teacher:pupil ratios: The last column in Table 6 shows the estimated sizes of typical teaching groups for geography in thirteen countries. They range from small groups of 15 and 20, in the United Kingdom and Belgium respectively, to the unusually large group of 50 in Switzerland. For all the other countries, the sizes lie between 22 and 32. Somewhat surprisingly, there appear to be no significant correlations between the sizes of teaching groups and the teaching methods which are analysed in the remainder of this chapter. For example, large classes do not prohibit practical exercises, field-work or class discussions led by students. For lessons based on lectures, films, television and other activities in which the teacher treats the class as a single unit, it makes little difference whether the class consists of 15 or 50. The balance of advantage accrues to the small class, however, when students work under supervision in small groups or as individuals, thus permitting each student to receive more personal help.

Teaching and learning methods

4.4.1 It is not easy to draw a clear line between those educational situations, which can be described as mainly teaching, as opposed to those which are largely learning in a subject like geography, as it is developed in the upper secondary school. A teacher giving a class lesson on any geographical topic would regard his performance as unsuccessful if he thought that the students were not actively and continuously engaged in learning during his exposition, even

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(1) Negotiations have been going on at the Schools Council (England and Wales) for several years with a view to increasing the number of subjects and decreasing the time allowances for each. No decision has yet been reached at the time of going to press (April 1975).

if the lecture were not punctuated with questions or intervals for discussion. It might be thought that students given a task to perform without assistance from the teacher would be involved in the purest form of learning; but, even in this case, the nature of the task and the instructions must lie within some structure arranged by the teacher, so that the activity would not be devoid of some portion of teaching. There is no doubt that students could learn a great deal of geography without the aid of teachers, but this is not the way in which schools usually conduct their affairs. No attempt, then, has been made in this report to distinguish between the two activities since they are, in practice, inextricably intertwined.

For the purpose of the survey, thirteen methods were selected for investigation with a view to discovering the frequency with which they were employed. They are set out in the first column of Table 7 and the frequencies of use are shown visually in Diagram 10. Some were known to be widely employed, but there was doubt about others. They fall into eight groups.

i. Summarising lessons.

ii. Using written material such as books, journals and articles.

iii. Using maps and pictures.

iv. Discussions.

v. Practical exercises both indoors and out of doors, ie including field-work and laboratory experiments.

vi. Essay writing.

vii. Using simulations.

viii. Programmed learning.

4.4.2 "Taking notes from the teacher" implies that the teacher uses some form of lecturing or demonstration to the class as a whole. That this takes place on a wide scale was not questioned. All the evidence collected at the 1971 meeting shows that class teaching is generally regarded as quite an important method for conveying information and explanation, for demonstrating the ways in which geographical data may be organised, for setting out disparate arguments and theories and for presenting the students with good models of geographical synthesis and analysis. Taking notes requires concentration on the matter and form of oral lessons, and trains the students to compile their own summaries. While note-taking is practised very frequently in eight of the countries and fairly frequently in another six, it is clearly valued on a somewhat lower plane than a number of other methods, particularly those which turn to the use of other sources of information than the teacher. There is, then, an implication that the teacher's role as a lecturer, though not neglected, is viewed in a good many countries as being subservient to his role as an organiser of learning through the use of geographical resources.

4.4.3 Written material: Among the resources used, books are highly esteemed and frequently used in nearly all the countries. In most of them, students are encouraged to read articles in journals and periodicals, but these are not used as often as books. The difference may reflect the degree of accessibility of suitable periodicals or the comparatively marginal relevance of much of their contents to syllabuses of work. Books often have the advantage of having been written with the specific needs of students in mind, but journals usually call for a good deal of discrimination, based on preliminary reading by the teacher, if they are to be profitable to the students.

TABLE 7

Teaching and learning methods employed

Frequency of use ( A : very frequently
( B : fairly frequently
( C : infrequently

| | Austria | Belgium | Cyprus | Denmark | Fed. Rep. of Germany | Finland | France | Greece | Iceland | Ireland | Italy | Luxembourg | Netherlands | Norway | Spain | Sweden | Switzerland | United Kingdom |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Taking notes from teacher | A | B | B | B | C | A | A | C | A | A | C | A | C | B | A | B | A | B |
| Using books | B | C | B | A | A | A | B | A | A | A | A | A | A | A | B | A | A | A |
| Using journals, articles etc | B | B | C | A | A | A | B | C | A | B | C | B | A | B | B | B | B | A |
| Using maps | A | B | B | A | A | A | A | A | B | A | B | B | A | A | A | A | A | A |
| Using pictures, photographs | A | B | C | A | A | B | A | B | C | A | C | A | A | A | B | A | A | B |
| Laboratory experiments | C | C | C | B | C | C | C | C | C | C | C | C | C | C | C | B | C | C |
| Field-work studying land-forms | C | C | C | B | * | C | C | * | C | B | * | C | C | B | * | * | A | A |
| Field-work studying agriculture | C | C | C | B | C | C | C | C | C | B | C | C | C | B | A | B | A | A |
| Field-work studying urban areas | C | C | C | C | | C | C | | C | B | | C | C | B | | | A | A |
| Class discussion led by teacher | B | B | B | A | C | A | B | A | A | B | C | A | A | A | A | A | A | A |
| Class discussion led by students | B | C | C | B | A | B | C | B | B | C | C | B | A | B | B | B | C | B |
| Essays | C | C | C | B | B | B | B | C | A | B | C | B | C | C | B | B | C | A |
| Simulations | C | C | C | C | B | B | C | C | B | C | C | B | C | B | C | C | C | B |
| Programmed learning | C | C | C | C | C | C | C | C | C | C | C | C | C | C | B | C | C | C |
| Practical exercises | C | B | C | B | B | B | B | B | C | B | C | A | B | A | A | A | A | A |

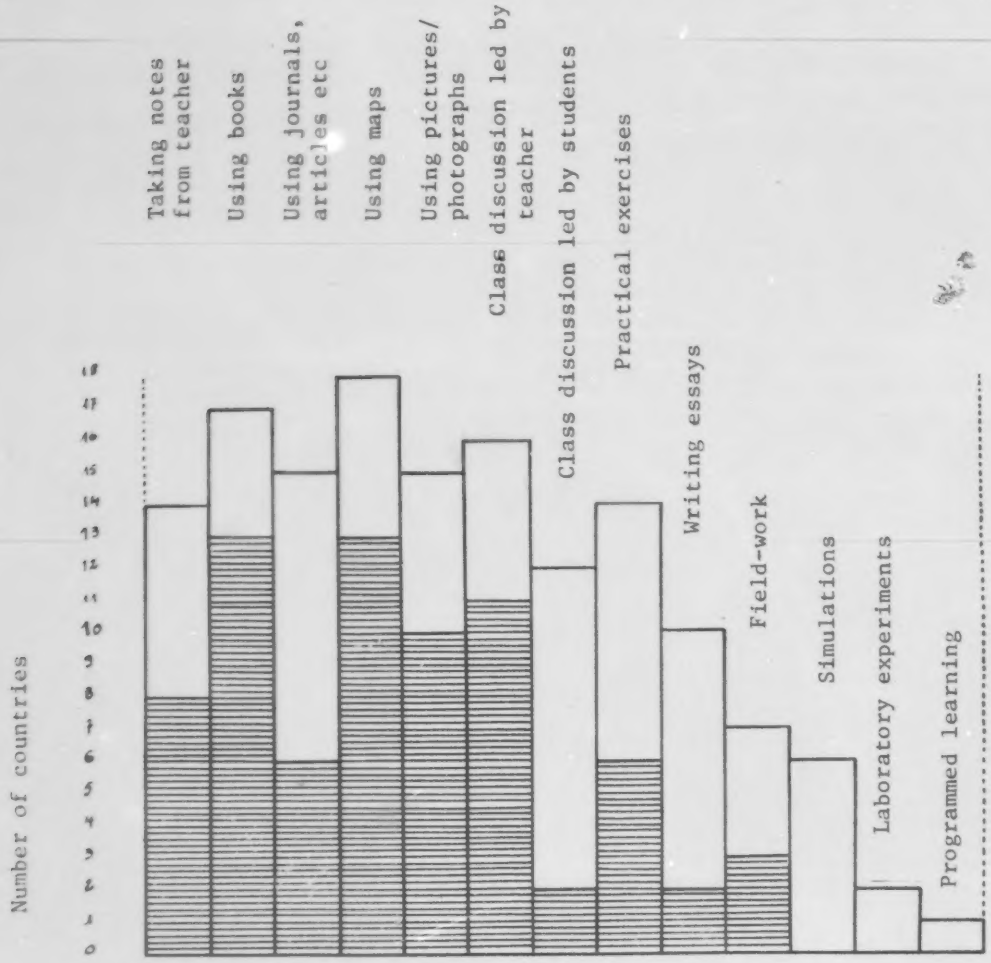
Note

* in the section relating to field-work indicates that the entry was obtained from the earlier questionnaire which did not distinguish between the different kinds of field-work. The entry therefore refers to field-work in a general sense.

Diagram 10

Estimated frequency with which selected methods of teaching and learning are employed

The methods are indicated at the head of each column.




The diagram shows the number of countries in which each of the indicated methods is estimated to be used:

a. very frequently - shaded area
and b. fairly frequently - unshaded area

4.4.4 Maps and pictures: It has often been said that maps are the essential tools of the geographer; and this viewpoint is supported by the enquiry. The use of maps emerged as the most frequent method of teaching and learning in geography - slightly more important than the use of books. Pictures and photographs too have a fairly high place in the conduct of lessons, being used very frequently by more than half of the countries.

4.4.5 Discussions: Oral teaching conjures up the picture of a one-way flow of ideas from the teacher to the class. Discussion, on the other hand, implies a multi-directional flow of ideas, not only between teacher and students but also among the students themselves. The value of discussion becomes immediately apparent. Contributions by the students reveal the extent to which communication from the teacher, books, maps and other sources has been effective and create a situation in which misconceptions may be corrected; but, in addition and more importantly, they introduce fresh ideas emanating from the students. As long as the teacher himself conducts the discussion, he is able to direct it into channels which will ultimately lead to a set of professionally designed objectives, while at the same time he accepts the possibility of enrichment from the students. As a method of teaching, this kind of discussion is employed very frequently by a majority of the member states. Indeed, only two countries out of eighteen appear to make little or no use of it.

Where teaching is directed by the students, it moves even further towards an encouragement of student initiative. It thrusts greater responsibility upon the students for the introductory phases of the discussion, requiring access to a good supply of resources and generous time for preparation. While this procedure is less common than the preceding one, it is still used a fair amount by two-thirds of the countries, although only two - the Federal Republic of Germany and the Netherlands - claim to use it extensively. Both forms of discussion indicate a significant trend in geographical education, in which teaching and learning is moving from the ex cathedra transfer of knowledge from teacher to student to a state of genuine participation between all those involved.

4.4.6 Practical exercises: The enquiry dealt with three classes of practical work - two of them somewhat specialised in character and separately defined as laboratory experiments and field-work - and one of a more general nature simply called "practical exercises". The last class was explained in a number of syllabuses of work and described during the conference in prepared papers and discussions. General practical exercises have been referred to in earlier chapters on objectives and syllabuses (see, in particular, the Irish syllabus in Section 3.2.1). They can usually be carried out in the classroom and include the following:

i. work on maps of various scales, aerial photographs and other pictures, which afford training in the extraction of information, description, interpretation and the establishment of relationships between phenomena;

ii. the construction of nets for map projections;

iii. the construction of maps and the cartographic representation of data;

iv. the reading of weather charts and the drawing of simple charts from meteorological data;

v. the analysis of statistics and the representation of statistics in graphical and diagrammatic forms;

vi. in a few countries, some mathematically more advanced quantitative exercises.

Practical exercises in some or all of these spheres are established methods of learning in all but four of the countries, and are used frequently in six of them.

Laboratory experiments have little place as methods of learning. Denmark and Sweden use them fairly frequently, but in all the other countries they are used infrequently or not at all. Reports from Sweden, where physical geography is integrated with natural science, refer to experiments in air pollution and conservation. In some countries, schools have erosion tanks in which the effects of running water or waves on model landscapes can be observed and recorded, and other working models which simulate the flow of ice or lava. There are also physical models, which reproduce visually the processes of diffusion and the establishment of a primary network of communications between major population centres. Experimental methods of this kind are, at present, comparatively unusual features of geography teaching.

4.4.7 Field-work: That geographical field-work covers a wide range of possibilities is indicated by the following extracts from the report on an official survey conducted in England and Wales in 1971-72.

> "Field-work in the school's locality has much to commend it; it is least expensive of time, money and organised effort, and it permits repeated visits to observe changes over a period of time. - All the schools in the survey which did field-work (92% of the sample) used their local areas; - nearly all offered residential courses for older pupils. - The most common forms of experience are field teaching and 'traditional' field-work by pupils. In the former, the teacher assembles pupils at one or more vantage points, or stops at chosen halting places in a journey, describes selected features, points out relationships and demonstrates techniques such as the orientation of a map or the use of a elinometer. He often requires pupils to make sketches, sketch maps, notes or other records. Traditional field-work by the pupils develops naturally from field teaching and often runs concurrently with it; the work of observing, describing, explaining and recording is done by the pupils. - Problem solving exercises are suitable only if pupils have sufficient techniques at their command to work without close direction. - Hypothesis testing in the field is a new venture in school geography. It calls for logical and often abstract thinking by pupils and normally requires somewhat sophisticated techniques in the selection and treatment of data."

Of the schools surveyed some 25% were carrying out problem solving exercises and 15% hypothesis testing.

The Council of Europe survey did not attempt to distinguish between these different kinds of field-work, but in the second questionnaire it attempted to discover whether there were any differences in the amount of time devoted to studies of land-forms, rural areas and urban areas. Of the seven countries which estimated field-work to occur with a reasonable degree of frequency, all except Denmark (which paid less attention to urban areas) extended it to cover all three types of study. Urban field-work, relatively neglected in the recent past, appears in general to have gained parity with other forms.

Only Spain, Switzerland and the United Kingdom recorded a high degree of frequency for field-work, and the claim for Spain must be regarded as a declaration of intention rather than an accomplished fact at the time of the survey. In four other countries - Denmark, Ireland, Norway and Sweden - field-work is done fairly frequently. In the remaining eleven countries, it is done rarely or not at all. The last group includes Belgium where, as its syllabus shows, the desirability of field-work, to be carried out in six excursions, is enjoined on the schools. Presumably the amount of field-work actually done was thought to be insufficient to merit classifying it as fairly frequent.

While opinion may be divided, as between one country and another, on the value of some methods of teaching, there can be no doubt that, in the unanimous opinion of delegates, experience of field-work is seen as fundamentally important to the teaching of geography, and that its virtual absence in many countries is deeply regretted. The position of field-work may, therefore, be regarded as a special example of divergence between an almost universal support for the principle and a meagre response in practice.

4.4.8 Written essays: Among the different kinds of writing associated with geography, the formal essay ranks high in the intellectual demands which it makes on the students. It calls for a relevant selection of subject matter, an orderly presentation of ideas and a logical juxtaposing of arguments in an extended piece of writing. It offers the student the opportunity of practising the difficult arts of analysis and synthesis. There are some practical disadvantages. Essay-writing can consume a good deal of a student's time; and where classes are large the correction and constructive marking of a batch of essays can absorb even more of a teacher's time. It is not among the most popular devices in the teaching of geography, being used very frequently by only two countries and fairly frequently by another eight. Among the eight countries, however, which have little use for written essays three - Belgium, the Netherlands and Norway - require all students to produce individual written dissertations, which make similar, and possibly even more exacting, demands in sustained writing.

4.4.9 Simulations: Among the best known early simulations produced for school geography are two which were pioneered by the American High School Geography Project - the Portsville Model of town growth and the Metropolis game which is an exercise in industrial location. In the last ten or twelve years, these have been followed by a number of exercises based on Hagerstrand's "Monte Carlo" simulation of diffusion and an even larger number concerned with farming, communications, factory locations and town growth. Operational- and role-playing games, using simulation techniques and covering a wide spectrum of geographical topics, are now available in some countries. Before students can take part in simulations, they must be well acquainted with the related factors which influence decision-making in the real world. These factors may be concerned with physical geography, site and location, transport systems, farming methods, sources of raw material, industrial processes, markets, and many other elements with which geographers are concerned. Simulations require the students to arrive at decisions by an exercise of the thought processes which occur in real life, and, in many cases, confront him with the possibility of stochastic elements. Teachers who favour their use claim that the sense of personal involvement stimulates a high degree of motivation for learning and thinking. The hallmark of good simulations is that, having involved students in creative thought about basic concepts and processes, they can be applied to illuminate real situations and events. For example, a complex simulation on the selection of a site for a new airport in which groups of students are given outline briefs and assume the roles of land agents, town developers, transport engineers, experts in water supply, sewage and electricity supply, farmers, residents in existing settlements and conservationists, confronts them with the arguments, problems and harsh realities of acquiring and servicing a new airport with its associated residential and industrial development. It may be too early to judge the ultimate place of simulations in the repertoire of methods of teaching geography. At present, only six countries claim to make fairly frequent use of them.

4.4.10 Programmed learning: Although it is possible that effective programmes might be devised for dealing with some kinds of quantitative techniques and other isolated topics, in which clear cut correct or incorrect steps can be distinguished in a learning progression, the more complex issues which are characteristic of geography do not readily lend themselves to uniquely graded procedures for learning. The replies to the questionnaire indicate that programmed learning has made no significant headway in the upper levels of school geography.

4.4.11 On the strength of the evidence available, it may now be possible to arrive at a composite picture, across the member states, of the conduct of geography teaching among older students. It will be necessary to postulate a period of time which is long enough to permit the full range of methods to be brought into use - perhaps a term or half a year. Somewhere in the region of half the lessons would be conducted in specialist geography rooms, while others would take place in classrooms used for other purposes. It would be quite common to find the teacher standing before his class, using maps, globes and a variety of visual aids, giving lectures and other forms of instruction. Just as frequently, the class would be engaged in discussion, led more frequently by the teacher and less often by the students. But, for rather longer periods, the students would be using maps, books, articles, pictorial materials and duplicated work sheets, perhaps in concert with oral lessons and discussion, or working at their desks under supervision. In some countries, the students can be visualised as carrying out these same activities in fairly lengthy private study periods, but in others the length of time so available would be short. In most countries, the students would occasionally be busy with practical exercises which would be recognisably similar regardless of country; but, in a few countries, there would be somewhat different kinds of practical work of a mathematical or statistical character assisted by the use of mechanical or electronic calculators. Written essays would occasionally occupy the students in about half the countries, but they would be more frequent in one or two. In a small group of countries, the students would be sometimes found out of doors studying the living landscape, but most countries would find it impossible to arrange field-work. In about one-third of the countries, there would be occasional periods in which teacher and students were busy with one of the newer simulation exercises. Even more rarely, students might be found carrying out laboratory experiments.

It is, thus, possible to identify a common core of methods subscribed to by most countries and a group of fringe activities confined to the minority. These differences are vividly displayed in Diagram 10.

## CHAPTER 5

## EVALUATION

5.1 Three aspects of evaluation in geographical education are considered in this chapter. The first, which will receive only a brief treatment, concerns the use of evaluation as a feedback mechanism with the purpose of modifying the course of work (1). The other two, which concern evaluation of the progress and attainment of the students, will be dealt with at some length under the separate headings - methods used and abilities tested.

### Evaluation of the course

5.2.1 There has been a growing awareness that methods of testing in the normal assessment of students can be used to monitor the suitability of the separate parts of the programme of work and of individual test items. Two examples may suffice to illustrate the point. If the treatment of certain topics in physical or regional geography adheres too closely to standardised textbook accounts in the form of description and explanation, the learning process is largely a matter of straightforward memorisation. In assessment procedures which are based on such a treatment, the students' replies to questions - whether oral or written - both during the course and in the terminal examination, tend to have a remarkable similarity of content and form. In such a case, the assessor may be led to distinguish between one candidate and another not so much on aspects of geography contained in the answers as on such extraneous factors as felicity of expression. Again, if field-work is confined to field-teaching and teacher-directed records, the students' notebooks tend to be stereotyped, with little to distinguish one from another.

5.2.2 In both of these cases, the technique of item analysis may well show that the outputs are characterised by a lack of discrimination, regardless of the differences of intellect which exists among the students. This is indicated by a tight statistical bunching of marks awarded for attainment, and suggests that the teaching (or the test) does not bring into play the wide spectrum of intellectual processes which permits abler students to demonstrate their originality or to exercise their initiative. Item analysis may, thus, be used to identify areas of the curriculum into which more challenging matter and methods might be introduced to the benefit of the students. It may also be used to distinguish areas in which tests possess a very low facility rating, that is, the matter or methods tend to be too difficult. Evaluation of parts of the course in the manner described may help in restructuring the programme of work in a way which makes it more suitable for the students.

5.2.3 The 1974 questionnaire asked whether evaluation was used to remove unsuitable elements from the curriculum. Only ten countries answered this question. Positive replies were received from five - Belgium, Finland, the Netherlands, Switzerland and the United Kingdom - and negative replies from the other five - Cyprus, Denmark, France, Ireland and Norway. The report of the Netherlands study committee on the written examination in geography for 1973 provides examples of a thoroughly professional approach to item analysis as described above. In countries where formal procedures do not exist, some form of evaluation feedback may still take place through comments by teachers and examiners based on general opinion rather than statistical techniques.

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(1) This has been defined as "formative evaluation" to distinguish it from "summative evaluation".

Methods of evaluation

5.3.1 It is not the purpose of this section to enter into a discussion of the arguments raised for and against various methods of evaluation as applied to geography, but rather to investigate the situation as it was reported by fifteen member states. Where examination results have a marked effect on the career prospects of the students, there is a public demand for methods of examining which are thought to give each candidate a fair chance of displaying his ability and the results of his efforts. In some countries, this has led to a somewhat complex system of awarding marks, while other countries appear to operate a relatively simple system. In Italy, the assessment is carried out solely by means of oral examinations conducted during each of the three terms. In Greece and Ireland, a written examination only is held, and France depends on a practical examination and the teacher's final assessment (though the latter may range widely over the course and use a number of methods). At the other extreme, Finland uses all nine of the methods which were the subject of the enquiry, Luxembourg seven and Norway six. In the remaining eight countries, combinations of three, four or five methods are used. Table 8 sets out the details, and Diagram 11 presents them visually.

5.3.2 When a number of methods are used the problem of weighting for each separate method arises. Five of the countries - Belgium, Finland, Iceland, Luxembourg and the Netherlands - employ a comprehensive weighting system in which a fixed proportion of marks is awarded to each of the methods in use. For example, Iceland allocates 50% of the marks for objective tests, 25% for the teacher's continuous assessment and 25% for individual dissertations. Cyprus and Switzerland have a partial weighting system. The former allocates 40% of marks to the oral examination and the latter 50%, the remaining marks being spread over the other methods in use. Detailed weighting systems involve arbitrary division of the marks among all the methods used but offer a guarantee that no single method will be neglected in the total assessment. Where no precisely defined weighting system is instituted, some form of reciprocal compensation is possible; for example, weakness in the written examination might be compensated to some extent by strength in the oral test or individual dissertation. One of the surprising features, revealed clearly by Diagram 11, is that apart from the oral examination, subscribed to by eleven of the fifteen countries, none of the methods listed is used by more than two-thirds of the countries. There is thus a wide disparity in evaluation procedures among the contributing member states.

5.3.3 Teachers' assessments: Teachers who have been in close contact with the students for an extensive period are clearly in a favourable position to contribute to the evaluation of each candidate's attainments. This contribution may take the form of a final assessment towards the end of the course by means of a battery of tests in an internal school examination, or, less formally, by the exercise of a carefully balanced judgement on the relative success of each candidate in the classes. It may also be achieved by continuous assessment which has the advantage of covering every aspect of the course and the nature of the progress made by each student. If the development of the student in his geographical education can be regarded as a journey towards maturity, the final assessment records the place of arrival at a given moment. Continuous assessment permits a description of the journey by which the place has been reached, recording whether the pace of advance has been accelerating or decelerating, whether progress has been consistent or irregular, whether the student needs much or little support when he encounters new problems, whether he is developing confidence in his judgements consonant with his growth as a young adult and so on.

TABLE 8

Evaluation (a) Methods used (where a specified proportion of marks is awarded for each method this is shown as a percentage)

| | Austria | Belgium | Cyprus | Denmark | Finland | France | Greece | Iceland | Ireland | Italy | Luxembourg | Netherlands | Norway | Switzerland | United Kingdom |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Teachers' final assessment | X | X 10 | X | X | X 10 | X | | | | | X | | X | X | X |
| Teachers' continuous assessment | X | X 5 | X | X | X 5 | | | X 25 | | | X 10 | X 15 | X | | |
| Objective tests | X | | X | | X 5 | | | X 50 | | | X 30 | X 20 | | X | X* |
| Written examination : essay type | | X 50 | X | | X 40 | | X | | X | | X 40 | X 15 | X | X | X |
| Practical examination | | | | | X 10 | X | | | | | X 5 | | | | X |
| Oral examination | X | X 30 | X 40 | X | X 5 | | | | | X | X 10 | X 30 | X | X 50 | X* |
| Individual dissertation | | X 5 | | | X 5 | | | X 25 | | | X 5 | 20 | X | | X* |
| Records of field-work done by class | | | | | X 10 | | | | | | | | X | | |
| Records of field-work done by individual student | | | | X | X 10 | | | | | | | | | | X* |

Notes

1. Italy - The information recorded in the table was obtained from a written report which also records that some experimental use is being made of written tests; this is on a small scale only.

2. Netherlands - The analysis refers to the new style of examination introduced in 1973.

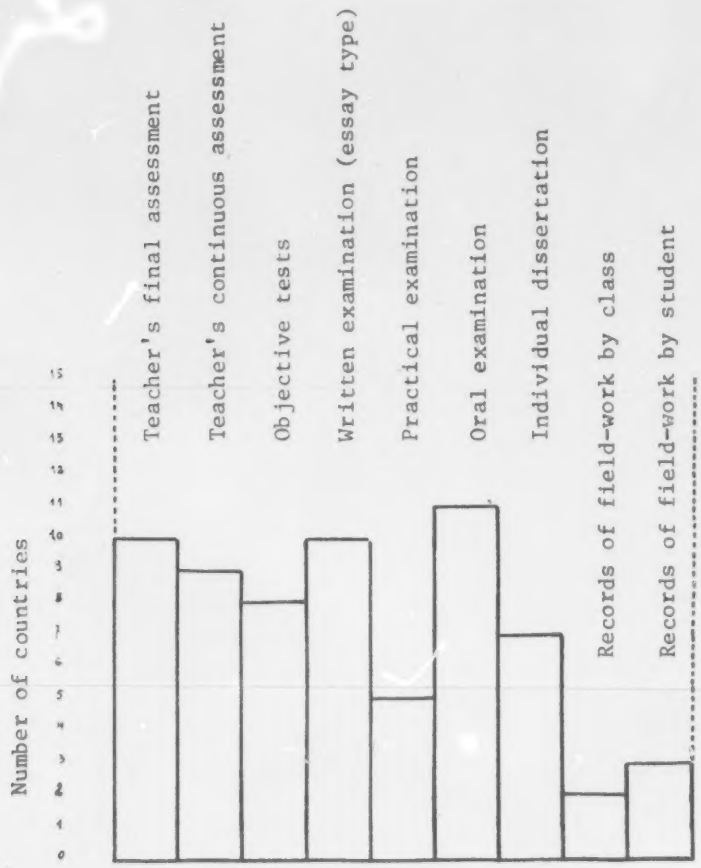
3. Switzerland - There is no analysis of the 50% of marks distributed among the teacher's final assessment, objective tests and the written examination.

4. United Kingdom - All ten examining boards set a written examination which includes questions on practical geography, and all make use of teachers' final assessments. The other methods, marked with an asterisk, are used by some boards only.

Diagram 11

Evaluation (a) Methods used for evaluation in 15 countries

The methods are indicated at the head of each column. The diagram shows the number of countries which use the methods indicated.




Analysis for 15 countries

Like most other methods of assessment in which there may be a substantial fraction of subjectivity, or concerning which there may be some doubts about the comparability of internal evaluation in the school with national standards, it is always possible to resort to one of the established stratagems of external moderation to increase public confidence in the validity of teachers' assessments. All forms of external moderation, however, are an additional burden in the total evaluation scheme and may be rejected on the grounds that, desirable though they may be, they further complicate an already complicated operation and involve extra manpower.

Ten countries make use of teachers' final assessments. In France, they clearly play an important role. In the United Kingdom, they have a somewhat marginal application, being generally used to deal with borderline cases in the award of grades. In Luxembourg, the fact that 100% of the marks are awarded by six other methods of assessment would suggest that they do not possess great significance. Nine of the fifteen countries use teachers' continuous assessments. But, as Table 8 shows, only seven countries use both final and continuous assessments. While teachers' assessments are, therefore, acceptable in a majority of the countries, there is a substantial minority where they are not.

5.3.4 Objective tests: Among the virtues claimed for objective tests (1) are two which are highly valued. They eliminate the bias of individual examiners and they can, if required, be machine-marked with a consequent saving in manpower. Objective tests of factual memory and recall at an elementary level are easily constructed, but tests of higher cognitive abilities associated with the more advanced levels of geography present greater difficulty to those responsible for setting examinations. They need to be subjected to item analysis to determine their discrimination and facility ratings, and their validity and reliability must be attested. Once a set of appropriate tests has been established they can be stored in question banks in their existing, or modified, forms for use in subsequent examinations after a suitable lapse of time. A proportion of fresh questions can be validated in each new examination, thus adding to the store. The main problem, therefore, is the initial preparation of an adequate bank of questions. Objective tests are used in seven countries, and are in partial use in the United Kingdom as well; that is they play a part in evaluation in about half of the fifteen countries. They are allocated 50% of the total marks in Iceland, and a substantial proportion in Luxembourg and the Netherlands.

An example of an objective test suitable for advanced students has been extracted from the Netherlands pre-university examination paper of 1973. Before answering the question, the candidate is required to read a short passage (of about 150 words) from an official report on regional planning in the Netherlands describing and explaining changes which have taken place in population growth and distribution, and to study a statistical table which shows the absolute figures of inland migration among the four main regions of the Netherlands and the proportion of total population resident in each region. The question based on this material is as follows:-

> "West Netherlands shows a decline in population growth in contrast to the east of the country. This was caused by:-
>
> A. Migration from the west on account of the diminished living amenities;

---

(1) No attempt has been made in this section to define the various categories into which objective tests may be divided.

B. Migration from the west on account of the diminished employment opportunities;

C. Extensive migration from north and south Netherlands to the east, related to the more attractive living climate in the east;

D. Declining migration from the east because of the decrease in the birth rate."

A careful reading of the official extract and an analysis of the statistics, allied to a basic knowledge of the geography of the Netherlands, enable the candidate to eliminate unsuitable alternative explanations and to arrive at the most reasonable answer. The question thus calls on the abilities of comprehension, statistical analysis and logical deduction, but does not involve the examiner in subjective judgements.

5.3.5 Written examinations: Essay-type written examinations embrace a considerable variety of question types which will be considered later in this chapter. In order to do justice to candidates, an examination paper may offer a choice from a fairly large number of questions, permitting them to draw upon knowledge of many topics contained in the syllabus. Comprehensive papers covering the whole of the syllabus would usually be far too lengthy for the candidate to read before making his final selection. But the smaller the representative sample in the paper, the greater is the chance that individual candidates might be confronted by questions that present them in too favourable or too unfavourable a light. To some extent, these difficulties are diminished by providing some factual resources in the form of maps, statistics, written material and the like, upon which questions may be based - a common device in most of the papers submitted by delegates. There are also problems of establishing equivalence of difficulty between optional questions. Written papers, thus, require very careful preparation by a committee of examiners who, in countries where there are large numbers of candidates, must also provide guidance in the form of a marking scheme for the large number of people employed in marking the examination scripts, and, if necessary, apply some form of moderation to reduce the effects of subjective bias. Essay-type answers do, however, permit candidates to display abilities to synthesise, to arrange ideas in fresh ways and to demonstrate judgement in the selection and organisation of relevant subject matter, in a manner which is not easily tested by other means. In spite of the difficulties, therefore, ten of the fifteen countries use essay-type written examinations. But in at least four of them - Finland, Luxembourg, the Netherlands and Switzerland - the proportion of total marks allocated to them is less than 50%. In Belgium they attract 50% of the marks, and it is in Greece, Ireland and most of the United Kingdom that they dominate the assessment procedure.

5.3.6 Practical examination: Later sections of this chapter deal with the importance attached to some of the abilities which are tested in evaluation procedures. Three of these - abilities to use maps, to analyse statistical data, and to use photographs - are given high or fairly high ratings in the returns from thirteen countries. It would be difficult to conceive of any effective evaluation of these abilities which did not, at least in some particulars, resort to some kind of practical tests. Yet the returns recorded in Table 8 show that only four countries claim to employ a practical examination among its methods of evaluation. It may well be that this method of evaluation in some countries which have made a negative return is conducted under other headings such as teachers' final or continuous assessments, individual dissertations, or as part of the written examination. The disparity between the returns shown in Tables 8 and 9 suggest that, in respect of this item, the questionnaire was misleading.

Only four countries claimed to use a practical examination. In France, it stands as one of the only two evaluation methods employed, the other being the teacher's final assessment. Finland and Luxembourg specify the proportion of marks allotted to it. In these three countries, it is thus a part of evaluation which can clearly be separated from other methods. In the United Kingdom, apart from tests of field-work used by some examination boards, the practical examination consists of a group of questions contained in the written examination paper, and one of these questions - concerned with abilities in the use of Ordnance Survey maps - is usually compulsory. Ireland makes no claim for a practical examination but the written examination includes practical questions which are parallel to those used in the United Kingdom. The following are examples of such questions:

1. Using a sheet of tracing paper placed over the aerial photograph of Smerwick Harbour (provided)

   i. show the coastline;

   ii. print in appropriate places the following features (a) cliffs, (b) bayhead beaches (c) roadways (d) the upper limit of cultivation.

2. State which map-projections you would choose in three of the following instances and give reasons for your choice in each case.

   i. To show the world distribution of rice.

   ii. To illustrate the shape of Africa.

   iii. To show the route of the Canadian-Pacific Railway.

   iv. To plot a trans-Polar flight path for aircraft.

   Select one of the projections that you name and describe methods of construction. Illustrate your answer with a simple graticule.

Other practical questions commonly included in United Kingdom and Irish papers are based on weather charts, distribution maps and the representation and interpretation of statistics.

5.3.7 Oral examination: In the hands of skilled examiners, an oral examination even on a few limited topics can yield a great deal of information about a candidate's knowledge and abilities which can contribute substantially towards a total assessment. The amount of time which can be given to each candidate is, however, inevitably restricted because of the heavy demands which it makes on manpower and the strain which a long interview would impose on the candidate. In some ways, a short oral test can be made more effective by forewarning each candidate of a limited range of topics within which the test will be conducted. It is important that the basic questions to be dealt with are determined before the test takes place, even if some procedural adjustments are permitted to enable the examiners to establish a satisfactory rapport with each candidate. Some relief from concentrated verbal exchanges can be achieved by asking candidates to carry out a practical task which can be accomplished in a few minutes. As with written examinations, careful preparation is needed to ensure a reasonable equivalence in the difficulty of the questions, and external moderation may be applied if the range of marks awarded by any group of examiners appears to vary substantially from national norms.

The following groups of questions from Switzerland (prepared for the Maturité Fédérale), where the oral examination accounts for half of the total marks in the final assessment, demonstrate the economy of the method and groupings of questions which are estimated to offer equivalent chances to successive candidates.

Candidate 1.

1.a. Identify the two rock samples (gneiss and limestone). To which rock groups do they belong? How are they formed?

1.b. In which nappe-units of the Swiss Alps are such rocks dominant? Give reasons.

2. Why is Africa still at a low stage of development in spite of its nearness to Europe?

Candidate 2.

1.a. See Atlas map page 21. In which districts of Switzerland has the population declined?

1.b. What reasons do you know for the depopulation of our Alpine valleys? (Problems of mountain economy)

1.c. How can the outflow be controlled? (inter alia through establishment of co-operatives - example Puschlav)

2. Draw and explain the climatic graphs for the following station:

Temperature $25^{o}$, $25^{o}$, $27^{o}$, $26^{o}$, $26^{o}$, $26^{o}$, $25^{o}$, $24^{o}$, $24^{o}$, $25^{o}$, $26^{o}$, $25^{o}$ Celsius

Precipitation 17, 39, 123, 168, 385, 186, 114, 170, 185, 225, 142, 26 mm.

In which major climatic region might this station lie? Describe the climate of this region and its influence on the inhabitants.

Candidate 3.

1. Compare the town plans of Zurich and Geneva on pages 12 and 13 of the Atlas. From the situation of these towns explain their importance.

2. Draw a cross-section through Africa from the mouth of the Congo to Zanzibar, and explain the geological/morphological structures.

Oral examinations are used in ten of the fifteen countries, and are also in partial use in the United Kingdom, where they play a small part only in the total assessment. They are the sole method of assessment in Italy and, on the information provided, they attract a high proportion of marks in Belgium, Cyprus, Switzerland and the Netherlands, and a small proportion in Finland and Luxembourg. It is not possible to state the relative weighting ascribed to them in other countries. Of all the nine methods considered in this survey, they occur more frequently than any other single one.

5.3.8 Individual dissertation: The educational values of essay-writing and the advantages and problems arising from their inclusion in evaluation methods can be said to apply to individual dissertations in a heightened form. An individual dissertation is, in essence, an extended essay normally requiring a greater use of reference sources and resulting in a greater output of work. For assessment purposes, essays present examiners with scripts which, though differing from one another, have the regularising constraints of a common theme imposed by the set question, and the limits of the examination. Individual dissertations, however, are freed from these regularising influences, and the question of equivalence of difficulty becomes more acute unless a special scheme of evaluation is devised. This often takes the form of awarding marks

from a zone (for example from 0 to 5, or 0 to 10, and using the whole of the scale) for each of a number of agreed qualities in each dissertation which the examiners then assess subjectively. For example the qualities might be: accuracy of contents; intelligence shown in the use of resources; appropriateness of the means used in presentation (that is, whether proper use has been made of maps, diagrams, profiles, graphs, tables, writing etc); sequence of ideas and arrangement of supporting matter, such as maps, in relation to text; ability to arrive at convincing conclusions. The foregoing is not proposed as an ideal method of assessment, but merely indicates one of the tested ways of dealing with a particular set of evaluation problems. Whatever method is used, it is possible to increase confidence in the results by external monitoring and moderation of marks awarded.

Individual dissertations are used as part of the terminal assessment by six of the fifteen countries and by some boards in the United Kingdom; Scotland in particular, attaches great importance to them in the post-higher certificate course. In three of the five countries which have specified the division of marks, they receive only 5% of the total, but Iceland awards 25% and the Netherlands 20%. Thus, the individual dissertation shows a wide range of relative values set upon it even in the minority of countries which use it.

5.3.9 Records of field-work: in the list of fifteen countries now being considered, five recorded field-work as an important method of teaching. They are shown in Table 10. Of these five countries, Denmark, Norway and parts of the United Kingdom include records of field-work in the final assessment, but Switzerland and Ireland do not. Finland occupies an anomalous position; although field-work does not have an important place in teaching methods, certain outdoor skills and techniques are promoted, and records of field-work play a fairly important part in the final evaluation.

Two kinds of field-work records were considered in the questionnaire:

a. Records of work done by the class generally have a teacher-controlled input of ideas. The records reveal the nature and extent of field-work experience encountered by the class, but there is often a good deal of scope for individuals to show their abilities in recording and arranging the results.

b. Records of field-work done by individual students afford the additional challenge of defining a suitable subject for investigation and devising methods of carrying it out. Even when the teacher's guidance is available, the final assessment must recognise that individual field-work makes greater demands on the student than classwork.

In both cases, the overall problems of evaluation are similar to those which apply to individual dissertations.

There is another way in which field-work may figure in the final evaluation; it may figure as part of a written examination. Two questions taken from an essay-type examination paper in the United Kingdom illustrate this point.

1. Describe regionally the main features of the physical geography of any one area (of up to 50 - 70 km2) which you have studied in the field. Explain the origin of the land-forms of the area.

2. You wish to define the urban field of a town. What are the practical difficulties you face in the use of (a) newspaper readership and (b) commuter journeys?

5.3.10 As earlier chapters show, it is possible to distinguish large areas of widespread agreement, as well as smaller areas of difference, between countries in their approach to geographical education at the upper secondary level. The volume of agreement suggests a fairly free flow of ideas about geography as a subject and methods of teaching it. In the case of evaluation, however, the areas of agreement are less solidly based. In Diagram 11, if the obviously minority position of field-work and possibly practical work is ignored and attention focussed on the six most popular methods of assessment, the number of countries missing at the head of each column is comparatively large. Also, the dominance of any single method of evaluation in the final total fluctuates from one country to another. In France, it is the teacher's final assessment and/or the practical examination, in Iceland objective tests, in Belgium, Greece, Ireland and the United Kingdom written examinations, and in Italy and Switzerland oral examinations. Each country will have gained considerable experience of its past or current methods and will have good reasons for continuing its present practices or for instituting changes. The evidence suggests that the flow of ideas about evaluation is too restricted and that it would be to the benefit of all countries to establish and maintain an exchange of information, opinion and research on evaluation in geography.

Abilities tested in current evaluation procedures

5.4.1 This section looks at the degrees of importance attached to certain abilities in thirteen countries in their terminal assessments of achievement in geography. Table 9 sets out the estimates of delegates for each ability in three grades - A, B and C - ranging from "very important" to "not important". The fact that, in a given country, one (or more) of the listed abilities is classified as C does not necessarily imply that it counts for nothing but rather that its rating is low in comparison with ratings for other abilities marked A or B. Thus, for any individual country, a vertical reading of its column gives an estimate of relative values for that country. For example, in Austria, all the listed abilities have a high rating with a somewhat lower value attached only to the analysis of statistics. In Cyprus, only the recall of facts and opinions receive a high rating and a group of abilities at the lower end of the column is totally disregarded, while Denmark places the recall of facts well below all other abilities. There is, however, some value in examining the total grades awarded to each ability and these are portrayed in Diagram 12.

5.4.2 Recall of facts learned from teachers and books: As students mature in the learning of a subject like geography, the emphasis increasingly moves from the accumulation of factual knowledge towards familiarity with the use of an ever-expanding range of resources, a command of skills and an understanding of fundamental concepts and principles. The higher cognitive abilities, thus, tend to overshadow the lower in the eyes of teachers, but the learning of facts still continues as an inevitable concomitant of exposure to lectures and wider reading. Indeed, it can be argued that facts are the basic building material from which all the higher cognitive abilities are constructed. At 17 or 18 years of age, the student ought to know more facts than he did at 15 or 16. He is constantly enlarging his vocabulary in physical geography, he meets more examples in social and economic geography, his regional geography demands a more detailed knowledge of physical and economic elements and of place names. Without this growing store of available facts, he would constantly be forced to resort to reference books, thus hampering his manipulation of ideas. While, therefore, the balance between factual knowledge and other abilities may be altered in favour of the latter, the former cannot be ignored. From the examiner's point of view, recall of facts is more easily tested than some other abilities, and there is a danger that they may well figure too prominently in evaluation.

TABLE 9

Evaluation (b) Abilities tested (in current examination procedures) in 13 countries

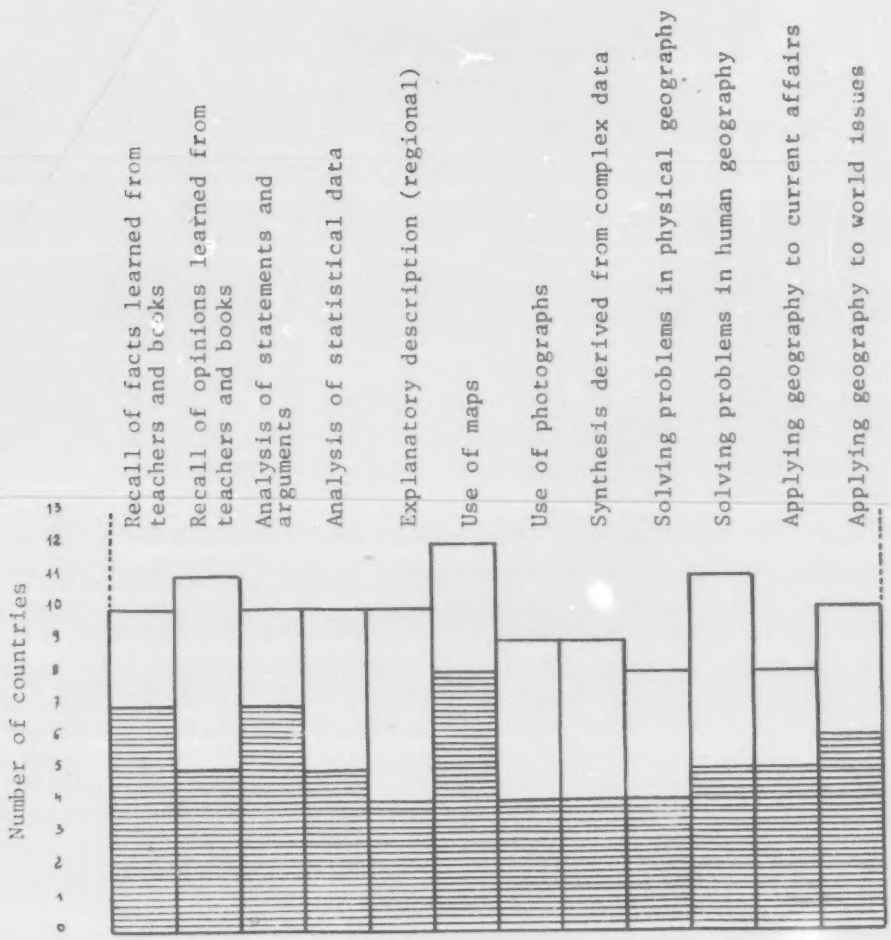
Degree of importance assigned to each area of ability

(A: very important
(B: important
(C: not important

| | Austria | Belgium | Cyprus | Denmark | Finland | France | Iceland | Ireland | Luxembourg | Netherlands | Norway | Switzerland | United Kingdom |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Recall of facts learned from teachers and books | A | B | A | C | B | A | A | A | A | C | B | C | A |
| Recall of opinions learned from teachers and books | A | B | B | B | B | A | A | C | A | C | B | B | A |
| Analysis of statements and arguments | A | C | C | A | A | B | B | B | A | A | A | C | A |
| Analysis of statistical data | B | B | C | A | B | B | C | B | - | A | A | A | A |
| Explanatory description (regional) | A | B | C | A | A | C | C | B | B | B | A | B | B |
| Use of maps | A | B | C | A | B | B | B | A | A | A | A | A | A |
| Use of photographs | A | B | C | B | C | B | C | A | B | A | A | C | B |
| Synthesis derived from complex data | A | C | - | A | B | B | B | B | A | A | B | C | C |
| Solving problems (a) physical geography | A | B | - | B | C | C | C | C | A | B | A | A | B |
| Solving problems (b) human geography | A | B | - | B | B | C | B | B | A | A | A | A | B |
| Applying geography to current affairs | A | C | - | B | C | C | B | A | A | A | A | B | C |
| Applying geography to world issues eg conservation, famine etc | A | C | - | B | B | C | B | A | A | A | A | A | B |

Diagram 12

Evaluation (b) Degree of importance attached to abilities which are tested in current examination procedures.
The abilities are indicated at the head of each column.




Analysis for 13 countries

The diagram shows the number of countries in which the testing of each ability is regarded as:

a. very important - shaded area in each column
and b. important - unshaded area in each column

Sometimes an examination question demands nothing more than factual recall, for example:

- insert the following regions and places on the outline map of Africa and name them: the White Nile and its source; the Kenya fault trough; one Protectorate; Marrakesh, Elizabethville; the regions of Bushmen and Tuaregs; Lagos, Accra (Switzerland).

Questions of this kind are, however, not typical of higher level geography examinations in any of the countries which submitted examples. More commonly, a question contains a part which depends on reproducing learned facts and a part which requires the candidate to explain, arrange, illustrate or comment on them. Such are the following:

1. Describe the geological structure of Belgium making use of some simple geological cross-sections. State the major structural units and locate them (Belgium).

2. Enumerate the major sources of power in the USSR and comment on their influence in the location of industry (United Kingdom).

3. Describe the physical and human geography of the Pacific coastlands of the USSR. In your answer, you may refer to the Amur Basin (Ireland).

Ten of the thirteen replies placed the recall of facts as important or very important in evaluation, but those for Denmark, the Netherlands and Switzerland placed it in the lowest category.

5.4.3 Recall of opinions learned from teachers and books: opinion in the strict sense might be thought to apply solely to matters of belief and conviction. The word has been used loosely in this section to apply to a number of areas of judgement in geographical thought. Explanation in geography may include this element when (a) the evidence is incomplete (as, for example, in the cause of meanders in a river course, or scarp recession); or (b) preliminary simple explanations are offered for complex situations thus implying a factor of judgement as to the suitable level of difficulty for the students (for example this is often done in dealing with the Coriolis effect, or the detailed study of a railway route when many of the possible alternatives considered by the railway makers are not discussed). There are also opinions as to the best way to classify phenomena (for example in climatic zones and economic geography), or to divide up a country into smaller regions for detailed study.

In learning geography, students meet many standardised explanations, classifications and regional divisions. They represent models of thinking backed by reasoning and judgement which present sound examples of ways of handling geographical data. An apprenticeship to established authority lays a foundation which prepares students at a later stage to arrive at their own levels of explanation and classification when confronted with new problems. There is then a strong argument for students to know and respect many accepted forms of opinion and judgement, even though they may later be placed in situations where standardised answers are not available. The following questions, in the main, could only be dealt with under examination conditions by students able to recall standardisation treatments of the topics taken from textbooks or lessons given by the teacher.

1. Suggest and give reasons for a division of Spain into well-defined regions (Ireland).

2. Explain the notion of hydrological balance. To what do you attribute the drying up of springs in Belgium? Quote some examples (Belgium).

3. Discuss how the characteristic features of chernozern soils develop in relation to their geographical environment. Show the distribution of these soils on a world map (United Kingdom).

4. Describe the origin and influence of laterite soils in the Savanna (Switzerland).

With two exceptions only, all the countries regard the recall of opinion learned from authoritative sources as an important or very important part of evaluation in geography.

5.4.4 Analysis of statements and arguments: The following extracts from a Netherlands examination give an example of a more extended use of material to test the analysis of statements than is usually found. The candidates are referred to three sets of statements which read as follows:-

a. "Water supply in the West Netherlands. Both deep-level and surface water are available for providing the water-supply of population and industry. In the west and south-west of the country, where the requirements for water are large, and only a little deep-level water is available, already considerable quantities of surface water are used. In Zeeland-Flanders, where the available quantity of deep-level water is extremely small and the water requirements of industry are increasing, already for some time surface water coming from Belgium has been used and stored in tanks. The water supply of Rotterdam has traditionally been derived from surface water taken from the New Maas river." (From: "The water economy of the Netherlands" State Publishing Office. 1968)

b. "The Rhine yields some 60% of the fresh water. A part of this must be stored in the Ijselmeer (Zuider Zee) so as to be used in dry periods with low river volume of flow, in order to prevent the central collection of polder water in the south-west Netherlands from becoming brackish.

The critical area of water supply for the population as a whole, for agriculture and for industry, lies in the west of the country. There the danger of brackishness is greatest precisely because of industrial development. The State Water Board has taken into account the rapidly increasing port- and industrial-areas, not only in the Scheldt basin but even more so in the neighbourhood of Rotterdam and Amsterdam."

(From: R Idenburg; "Perspectives with a question mark" 19NU 1969 issue).

c. "Since April, Rotterdam no longer draws its supply of drinking water from the Rhine but from the storage tanks in the Brabant Bieswood, where the better quality water from the Maas is stored."

(From NRC Handelblad. 9 June 1973).

Using this material candidates are required to answer seven questions, four of which are in the form of objective tests. A sample only is included.

i. In the Netherlands the need for water is continually increasing through the growth:

A. of population and industry and through the improvement in the quality of the water.

B. of population, industry and prosperity.

C. of population, prosperity and through the increasing use of water in the textile industry.

D. of population and prosperity and through increasing brackishness.

ii. Name two regions in the Dutch part of the Scheldt basin with marked industrial growth.

iii. Which two factors are responsible for increasing brackishness in dry periods?

iv. Randstad Holland lies in more than one province. In which of these provinces is surface water not used for drinking purposes? Why not?

Questions of this length can only be used when there is no choice in the paper, that is, candidates must attempt to answer every question - as is the case in the paper from which the example was taken. When a choice of questions is permitted, statements and arguments for analysis must be brief to save the candidates from wasting a great deal of time reading material which might have to be rejected. In its most terse form, the question might take the following form:

> "The density of population in the Benelux countries is one of the highest in the world. Why do you think this is so?" (United Kingdom).

The brief statement that precedes the question invites the candidate first to examine regional variations in the Benelux countries rather than to support the statement uncritically with some generalised explanations to which, on analysis, objections could be made on the grounds that the total region is not homogeneous.

As Diagram 12 shows, the volume of support for testing the ability to analyse statements and arguments equals that for the recall of factual knowledge, though the countries which do not rate it highly are different in the two cases.

5.4.5 Analysis of statistical data: Ability to handle statistics is often tested as part of a question. Sometimes, the examiner's requirements are stated specifically. Sometimes, they are open-ended, as in the following:

Cereals - 1965 - world statistics

| | Wheat | Maize | Rice |
|---|---|---|---|
| Area (square miles) | 842,000 | 348,000 | 484,000 |
| Production (tons) | 261,600,000 | 222,600,000 | 250,100,000 |
| Exports (tons) | 49,200,000 | 24,660,000 | 7,678,000 |

Discuss the statistics supplied, comparing all three sets. (Scotland). Common examples of the use of statistics for evaluation purposes are:

a. comparing agricultural production, industrial production or population density in two or more regions or countries;

b. illustrating changes in production, exports or population in a region or country by quoting figures for two or three individual years spaced at equal intervals of, say, ten years, or with variable spacing;

c. presenting information on two or more related variables for a group of countries, such as food production, energy consumption and population.

Examiners are generally concerned with the ability of students to avoid making false deductions from statistics - to know when the significance of the data lies in raw figures, figures reduced to percentages, the relationships between items in two sets, and the like. In the examination material contributed by countries, there were no examples requiring the use of the more advanced statistical techniques described earlier in the report in Section 2.8.3 (b).

In ten of the thirteen countries, testing the ability to analyse statistical data is rated as important or very important.

5.4.6 Explanatory description (regional). The classical questions under this heading take several forms.

a. "Describe (and explain) the physical and climatic characteristics of the Po Valley and account for its agriculture." For the Po Valley, one might substitute the Rhone Valley, the North German Plain, Scania, the Swiss Plateau, the Spanish Meseta or a legion of other distinctive areas.

b. "Describe and explain the development of industry in the Ruhr region." The Ruhr might be replaced by Central Scotland, Southern Sweden, the Oslo region, the Paris Basin or any other area with industrial development.

c. "Describe and account for the climate and natural vegetation of Equatorial Forests", - or the Tundra or another major vegetational region.

The chief features of writing in the descriptive/explanatory mode are first the accuracy of recall of fact and opinion, second the capacity to make a relevant selection of recalled matter to accord with the question, and third a recognisable but not easily defined quality of geographical style in the compilation. The importance of testing this ability received about as much support as the previous four abilities but with a slight decline in the number of countries placing it in the highest category.

5.4.7 Ability in using maps and photographs: the place of tests for those two abilities can be dealt with briefly. They have already been mentioned in Section 5.3.6 of this chapter under practical examinations; examples of the use of maps also occur in the Swiss oral examinations (Section 5.3.7). The central place of maps in the teaching of geography has emerged on several occasions in this report, and it is matched by the importance accorded to their use in evaluation. Only one country placed this item in the lowest category as not important.

The use of photographs is not as popular, but support for it from nine countries is not negligible. There are sometimes difficulties in obtaining suitable photographs. Some lend themselves only to questions which are too superficial for advanced students of geography at school, and others call for skills which go beyond the training that it has been possible to give during the course.

5.4.8 Synthesis derived from complex data: This is an ability that may be most conveniently tested by the teacher as part of his assessment or by means of individual dissertations. It is possible to present the candidate with written accounts, maps and other resource data (as many of the Netherlands questions do) and ask him to reshape a selection of the material in a coherent account. The disadvantages of expecting a candidate to read through a large amount of resource material have already been mentioned, except in cases where no choice of questions is permitted. Where choice is usual, there is a difficulty of presenting complex data in a sufficiently succinct form. One way of overcoming this difficulty is to use material which the candidate can be expected to have at his recall and to ask questions which require this material to be sifted and reconstituted in a new context. The new context may appear in the familiar form of "contrast" and "compare" questions - for example "compare the Mississippi and St Lawrence Rivers as inland waterways" or "contrast the development of hydro-electric power in Switzerland and Sweden". Such exercises provide useful tests of students' abilities to synthesise, but they have sometimes been criticised as mere academic exercises which ought to be replaced by questions of greater relevance to modern life. Two such questions are quoted from Belgium.

1. Choose two kinds of "traditional" life styles, and explain in what degree they are independent of the physical and natural milieu.

2. Compare the urban environments of great world cities with those of small provincial towns (in Belgium, France, Germany and Great Britain).

Nine countries rated the testing of this ability as important or very important, three placed it in the lowest grade, and one omitted it altogether.

5.4.9 Solving problems in physical and human geography: Tests falling into this category are generally not suitable for inclusion in written examinations with a restricted time allowance. The essence of problem-solving exercises is that, while they employ standardised methods, each problem must be new to the student. That is to say they should not be well-known geographical problems which have been solved by experts and which are written up in textbooks or other available sources; such problems would, in the main, test memory and recall rather than the ability to deal with a new situation. They are more likely to arise during the course of work and to be evaluated by teachers in their continuous or final assessments, in oral examinations or in individual dissertations and field-work. A few examples of such problems are:-

a. Analyse a sequence of given changes in weather phenomena (wind direction, clouds, temperature and precipitation) over a short period of one or two days at a place and describe the broad features of the synoptic charts which accompany them.

b. Examine a simple sequence of boulder-clay, gravel and sand, and describe the glacial and periglacial events which might have caused them.

c. Given maps and other information concerning alterations in field boundaries and farming practice in a small area over a period of twenty years, account for the changes which have taken place.

d. Relate differences in land use on a single large farm to variations in the slope, soil and drainage.

e. In a given urban area, examine the spatial relationships between residential, industrial and major service areas. Which are the most suitable areas for industrial and residential expansion?

f. In a small town, a new bridge is to be built across a river to deal with increasing internal and through traffic. Carry out a study of traffic flows to determine the best locations from which a final choice might be made for siting the new bridge.

There is an almost unlimited field of possibilities for problem solving exercises like those quoted above ranging in difficulty from elementary to very advanced. All require familiarity with techniques commonly used by geographers, the ability to analyse various kinds of data and the ability to think creatively. Problem-solving in human geography is ranked as an important or very important part of assessment by all but two of the thirteen countries, but there is less support for parallel exercises in physical geography.

5.4.10 Applications of geography to current affairs and world issues: Problem-solving exercises represent a specific form of applied geography concerned with providing solutions to real problems. The forms of applied geography now being considered are not necessarily aimed at finding solutions but rather at demonstrating that the student has an intelligent awareness and understanding of the geographical background to important issues which, in total, generally extend beyond the boundaries of a single discipline, often involving social, economic, cultural and political considerations.

The distinction between current affairs and world issues may be thought to be somewhat artificial. It may also be useful to distinguish between current events and current affairs. Current events are topical in character, having a brief blaze of publicity; such as the emergence of a new volcano, the devastation caused by a particular earthquake or a particular political upheaval in a South American state. Such topical events are often useful starting-points for teachers embarking on a study of phenomena of which the particular event is an isolated example. Because of their ephemeral nature, such events are not well suited for inclusion in evaluation procedures. Current affairs, on the other hand, persist over a period of time and have a continuing influence over the lives of the people involved. In this section, they are distinguished from world issues by being more localised. Thus, the long drawn-out Middle East crisis may be regarded as falling within the realm of current affairs, but the world energy crisis (with which it is clearly linked) might be placed in the category of world issues.

A good example of a question based on current affairs and with a localised application is taken from a Swiss paper:-

> "Discuss and examine critically the necessity for and economic importance of the upper Rhine navigation project".

All the papers submitted included questions of this kind. Other examples quoted earlier in this chapter concern the depopulation of Alpine valleys, and questions of water-supply and population movements in the Netherlands.

Among questions which deal with world issues, some are concerned with political changes from colonial to independent status, others with population densities and resources. One short and one longer question may suffice to indicate the character of such questions.

a. What are the main sources of world energy? Enumerate them and show in what measure the countries of Europe are dependent on other countries in this field (Belgium).

b. Study the table below which gives a selection of data about certain economically developed and developing countries for a recent year.

| | Country | Income per head. US dollars | % population in urban settlements (2000+) | Annual population growth % | Output of steel (millions tons) |
|---|---|---|---|---|---|
| A. | USA | 2,790 | 52.0 | 1.8 | 113.0 |
| | UK | 1,345 | 66.9 | 0.4 | 26.0 |
| B. | Brazil | 268 | 20.2 | 2.4 | 3.0 |
| | Nigeria | 84 | 10.5 | 1.9 | 0.0 |

i. Choose one country from pair A and one from pair B. For each of the two countries you have chosen, explain how the figures provide evidence of its stage of economic development.

ii. Below is a list of priorities for the governments of developing countries. Choose two which in your opinion would make the most effective contribution to economic development in such countries. In each case, say why you think that the scheme would be beneficial to:

- a school- and hospital-building programme;
- the establishment of an iron and steel industry;
- agricultural improvement;
- irrigation and hydro-electric power projects;
- improvement of the transport network (United Kingdom).

(Note: this question was set in an examination for pupils somewhat younger than the level with which this report is concerned, but, since it is adaptable to advanced treatment, it has been included as a good example of its kind).

The inclusion of questions on current affairs and world issues in assessment systems demonstrates the change which is taking place in the direction of geography teaching referred to in Chapter 1 (see Section 1.1.9). Nine of the countries ranked ability to apply geography to world issues as important or very important, but rather fewer supported current affairs.

5.5.1 A comparison of Diagrams 11 and 12 tends to support the thesis enunciated earlier in this chapter (see Section 5.3.10) that, while there are considerable differences among countries in the methods used for evaluation, there is much closer agreement as to the abilities in geography with which teachers and examiners are concerned. Most of the abilities listed in the questionnaire are rated highly by ten or more of the thirteen countries, and the rest do not fall significantly below this figure.

## CHAPTER 6

## TEACHER TRAINING

6.1.1 The training of teachers is carried out in universities or teacher-training institutes. At the upper academic levels of secondary schools, where a high standard of geographical education prevails in most countries, the recruitment of teachers from the universities is usually regarded as being more appropriate to the needs of the students. Even where the teachers are recruited from teacher-training colleges, the quality of their geographical education depends on the nature and quality of university courses since the geographical education of the college staff ultimately rests, either directly or indirectly, on the universities. The report by Professor J Tricart on the teaching of geography at university level dealt with the situation as it existed in the member states of the Council of Europe in the middle of the last decade. The report distinguishes four main "families" characterised by common features and trends.

a. Countries where no specialist training in geography exists - Greece, Italy and Spain. (To these may be added Cyprus which has no school of geography at the University.)

b. Countries in which geography is placed side-by-side with other disciplines (sometimes unrelated to geography) - the Federal Republic of Germany, the German-speaking universities of Switzerland (where the position of geography varies greatly from one university to another), Norway, Iceland, and Ireland.

c. Countries with gradual specialisation - Belgium, France, and Ireland.

d. Countries with a flexible system - United Kingdom, and Turkey.

6.1.2 In the first "family", the training of geography specialists is wholly unsatisfactory. In the remaining "families", the possibility exists, though it may not always be realised, of producing teachers suitably qualified for the more advanced geographical studies of secondary schools, providing sufficient time is given to the subject. Differences in the amount of time devoted specifically to geography are also discussed and the report poses a fundamentally important question. "How can an Italian who has studied geography for less than a semester have a training equivalent to an Austrian who has studied it for five semesters, or a Briton for four to six semesters, or an Irishman (six semesters) or a German (a minimum of four and often, in fact, six semesters)?" It is possible that some changes have occurred since the middle 1960s. The delegates from Spain and Italy referred to developments which are taking place to improve the status of geography in some universities in their countries.

6.2.1 For the purposes of the present enquiry, the thirteen countries which completed the 1973 questionnaire provided information on the degrees of specialisation possible in training geography teachers and the length of the training periods. This information is set out in Table 10.

6.2.2 Deg ees of specialisation:

a. In eleven of the countries, geography may be studied as a main subject, with or without subsidiary subjects. It is only in Austria and the Netherlands that this is recorded as the sole means of becoming a specialist teacher of the subject, but in the former country a substantial group of subsidiary subjects is compulsory.

b. In nine countries, geography may be studied as a group of two or more subjects, and in France, where geography is linked with history, this is the only means of becoming a geography specialist.

c. In four of the countries, geography may be only a subsidiary element in the training. Cyprus records this as the sole method of training in geography. (This has long been the case in Italy, Spain and Greece.)

d. In eight countries, geography may be treated in alternative ways, that is, either as a main subject or as one of two or more roughly equal subjects; and in a few countries, there is a choice under the three headings.

There may be no serious disadvantages if the study of geography is linked with that of one or more related subjects such as geology or an economics syllabus which includes an important fraction of economic geography. Where, however, the grouping involves subjects with quite different methodologies and little overlap of subject content, a serious dilution of geographical specialisation is inevitable.

6.2.3 Length of basic training:

The last column of Table 10 shows the basic training period for each country. The most frequently occurring figure is four years, with five years in Finland, France and the Netherlands, and rising to six or seven in Denmark. These figures are in no sense comparable, and their value in terms of geography as a specialism must be modified to take account of such other factors as the length of the university or college year and the proportion of time absorbed by other subjects. Another concealed factor is the base level from which higher education proceeds - in other words the level of achievement reached in the upper secondary schools.

6.2.4 The proportion of geography teachers trained as specialists: This is shown in the first column of Table 10. First, there is a group of eight countries in which between 80 and 100% of the teaching force are regarded as trained specialists: these are Austria, Belgium, Denmark, France, the Netherlands, Norway, Switzerland and the United Kingdom. At the other extreme are Cyprus with 2% and Luxembourg with 10%. In the middle ranges lie Finland (25-30%) which is a good deal lower than Iceland (50%) and Ireland (60%).

6.2.5 Some of the inequalities that exist among countries have been dealt with in earlier chapters - such as differences in the place of geography in the school curriculum, in the physical conditions in which it is taught, and in the time devoted to it. To these inequalities must now be added the availability of well-trained specialist geographers. But it would be a mistake to assume that the training of teachers comes to an end at the conclusion of their basic training. A moderately trained geographer may, over a period of years, convert himself to a highly trained specialist, if adequate support services are available and good opportunities exist for taking advantage of them. Any account of teacher training must, therefore, take account of current facilities for in-service training.

TABLE 10

Training of geography teachers for the upper levels of secondary schools

(Data collected from thirteen countries)

| | % of geography teachers trained as specialists (estimated) | Degrees of specialisation. Geography may be studied as:- | | | Length of basic training in years (possible extension in brackets) |
|---|---|---|---|---|---|
| | | a main subject (with or without one or more subsidiary subjects) | one or two or more roughly equal subjects | a subsidiary subject only | |
| Austria | 100 | X | - | - | 4 (5-6) |
| Belgium | 100 approx. | X | X (non-university) | - | 4 (for university) |
| Cyprus | 2 | - | - | X | 4 |
| Denmark | 100 | X | X | - | 6-7 |
| Finland | 25-30 | X | X | - | 5 |
| France | 100 | - | X (1 of 2) | - | 5 |
| Iceland | 50 | X | X (1 of 2) | - | 4 |
| Ireland | 60 (33% took final exams) | X | X | X | 4 |
| Luxembourg | 10 | X | X | - | 4 |
| Netherlands | 90 | X | - | - | 5 |
| Norway | 80-85 | X | X | - | 3½ or 1½ |
| Switzerland | 80 | X | - | X | 5-6 (varies) |
| United Kingdom | 100 | X | X | X | 4 (5) |

6.3.1 In-service training

Little is known of the more informal kinds of continued professional training throughout the member states of the Council of Europe. To some extent, they depend on traditional attitudes and practices. In schools where the staff includes a group of geographers - possibly led by a responsible head of department or faculty, or by a senior teacher - the regular exchange of views and the discussion of problems act as powerful stimulants for continued learning. The older members of staff may assist the younger in pedagogical matters; the younger may enrich the geographical content of the syllabus by informing their colleagues of new developments which are taking place in the universities. Books and articles in professional journals may be exchanged or recommended. If, however, there is a tradition that each teacher carries out his work in isolation then this potential source of self-generated corporate re-education within the school runs to waste.

6.3.2 There are examples of like-minded groups of teachers in a locality gathering informally to develop new ideas and to experiment with new teaching methods. A number of such activist groups exist in the Federal Republic of Germany, and a special supplement of the "Geographische Rundschau" published four years ago recorded new developments in school geography programmes which they had proposed and promoted and which reflected recent changes in university geography. Most of the impetus for new styles of geography teaching in the United Kingdom stems from the pioneer efforts of similar groups of teachers whose ideas were, after a period of controversy, accepted by national professional associations such as the British Geographical Association and by official bodies. A progressive movement in Denmark now has a public forum in the publication "Geografisk Orientering" which is produced quarterly by the Danish Geographical Association. In Norway, groups of teachers have undertaken developmental studies under the aegis of the geography section of "Norsk Lektorlag". There may be other countries in which new approaches to geography teaching are being informally promoted but there is, at present, no means by which knowledge of such movements can be assembled.

6.3.3 As has been indicated, the initiative of individuals and small groups may lead to recognition and support by national organisations and by the central agencies responsible for syllabuses and examinations. Delegates were asked to report whether there was (a) a national geographical association and (b) an association specially concerned with the teaching of geography, with appropriate journals in each case. Fourteen countries gave a positive reply on both counts. Two - Greece and Spain - gave a positive reply to the first question only. Iceland and Luxembourg replied negatively to both questions, but in each of them teachers have access to publications from larger countries with which they are associated. No replies were received from Malta and Turkey. Most countries, then, have the potential media for the public expression of problems and new ideas in geography teaching, but whether they play an effective role in in-service training depends on the presence or absence of a determination for reform and whether the associations and their publications involve themselves with pedagogical as well as academic matters. Entrenched conservatism, which discourages change, can be as unhelpful as zealous but uncritical radicalism. A happy blend of conservative and reformist attitudes, and good relations between teachers in universities and schools such as exist in a number of countries, can contribute a great deal to the continuing professional re-education of teachers in a geography which is revising its scope and purpose to meet the challenges of a rapidly changing world.

6.4.1 Finally, there are the arrangements for in-service training which are arranged or sponsored by the central authorities. The distinction between government arrangements and those made by teachers' organisations is not wholly valid. For example, in Norway, "Norsk Lektorlag", a teachers' organisation, acts as an agent for the Royal Ministry of Church and Education and receives financial support for approved courses. A somewhat incomplete picture emerged from discussions at the 1971 meeting, but some examples may be quoted. In Denmark, a college-trained teacher may follow a course at the high school for teachers taking up to six lessons per week, and if he wishes to specialise more he can attend a three-year course. The Geographical Association will arrange a week's course each year for teachers on particular aspects of geography and the universities will also provide courses. Regular courses are held in Austria and Switzerland; the Swiss Association of Teachers of Geography organises an annual course of about five days in length and the Centre for the Further Education of Teachers in Lucerne disseminates information about courses. In Ireland, training courses for teachers, organised by the Inspectors, are provided in the Easter and summer vacations. In the United Kingdom, there are many in-service courses provided by the Geographical Association, Institutes of Education, the universities, and the Departments of Education in England and Wales, Scotland and Northern Ireland. For some years, the central department in London has organised exchange courses jointly with other countries including France, the Federal Republic of Germany, Norway and the Netherlands. Austria and Switzerland are also prepared to receive teachers from other countries on their courses.

6.4.2 In spite of encouraging reports from some quarters, there is a wide gulf between the needs of geography teachers for recurrent refreshment in the teaching of their subject and the facilities available. It is all too easy for a teacher trained twenty or more years ago to reject written accounts of the new vistas presented by modern developments in geography, either because some of the techniques - particularly those with a mathematical bias - seem to be difficult, or because the purpose of models and theoretical geography appears to be in conflict with the study of the real world. How is he to arrive at an understanding of these new extensions of the subject, and gain confidence in applying them and assessing their worth, without personal guidance? It is only in the conditions of total involvement at courses of training, and freed from the pressures of day-to-day teaching, that he can receive the expert tuition and enjoy the unhurried discussion which will help him to resolve his difficulties. Some countries afford few or no opportunities for this kind of professional renewal; and, even in countries where such opportunities exist, the proportion of teachers who are able to take advantage of them is often comparatively small. This problem, however, is not confined to teachers of geography. The revolution in educational thinking extends to the whole curriculum, and calls for a fresh and more generous approach to in-service training and a more securely based exchange of ideas at international level.

## CHAPTER 7

## SOME PROBLEMS

### The status of geography

7.1.1 In the first chapter of this volume, some consideration was given to the changing status and scope of geography as a school subject, viewed in its own right. The question now to be considered is its status in comparison with the other subjects in the curriculum which compete with it for curricular time, resources and teacher supply. While teachers of geography, surveying their subject from within, may place a high value upon its educational qualities, the strength of the subject in the curriculum as a whole depends on the general views of educationists, administrators, and even politicians, who may know little about modern geography with its many applications to social and economic problems and the breadth of the intellectual training which it demands. The 1973 questionnaire, which attracted replies from thirteen countries, asked delegates to estimate the status of geography in their own countries as:-

a. an academic subject

and

b. a socially useful subject.

The estimates were expressed on a three point scale as being of high, average or low level. An average rating would indicate a satisfactory situation in which it occupied a place similar to that accorded to most school subjects. A high rating would give it special eminence in the hierarchy of subject values, and, conversely, a low rating would place it as a subject of little importance. The results of this enquiry are tabulated in Table 11.

7.1.2 a. As an academic subject, it was given a high rank by two countries, an average rank by nine countries (but with some reservations on the part of the Netherlands) and a low rank by two countries.

b. As a socially useful subject, it fared rather better with a high rank from six countries, average from five, and low from two.

Under both headings, it has low status in Cyprus and Switzerland; and its depressed status in Greece, Italy and Spain has already been noted. Belgium, Denmark, Finland and Iceland gave it an average rating under both headings. Luxembourg rated it highly under both headings. In the remaining six countries, its status under the combined headings appears to be above average (Austria, France, Ireland, Norway, United Kingdom and possibly the Netherlands). Unfortunately, there was little tabulated information from Turkey, but according to information gained at the 1971 meeting, the subject, though not well provided with resources because of financial stringency, is well organised and well regarded as an educational subject. The absorption of geography into combined subjects in Sweden and the Federal Republic of Germany has been recorded, and in the final year of the upper secondary school in Austria a similar scheme has been recently introduced. What then is the future of geography in the curriculum of the upper secondary school in the member states of the CCC?

### Geography in the curriculum

7.2.1 One of the resolutions passed at the 1971 meeting (see Appendix A) proposed "that although geographers should be encouraged to co-operate on an equal basis with other subject specialists in interdisciplinary enquiry, geography must still be maintained as a separate school subject and with no

dilution whatever, up to the end of secondary education". This represents the "internal" view of a representative body of geography teachers. Looked at from the external viewpoint of those concerned with the curriculum as a whole, the implications of one interpretation of this recommendation are worth examining. If representatives of all the main subjects of the curriculum pressed for an equal arrangement, the upper secondary school curriculum would consist of the pursuit of a large number of subjects without dilution. They would include the mother tongue, one or two other living languages, history, geography, two or three science subjects (ie physical and biological science, or physics, chemistry and biology), art and music, and possibly other subjects such as Latin, economics, religion and physical education. In such an array of subjects, geography would be fortunate to receive more than one-and-a-half hours per week of teaching and private study time, and this would effectively preclude the development of a broadly based course with some studies in depth.

7.2.2 However, another interpretation of this recommendation is possible. If the trend towards a choice of subjects for older students is accepted, reflecting the diverse interests and aspirations of individual students, then a somewhat different picture of the place of geography emerges. It would then take its place among the various options available in the upper school and would be in a position to claim a more generous allowance of time with a consequent enrichment of syllabus content and a raising of academic standards. This interpretation would appear to offer a more acceptable method of creating a situation in which a substantial degree of harmonisation in geographical education might be achieved across the member states. It would also ensure a flow of well-qualified students to universities, colleges and the professions with a good base-level of achievements upon which further specialisation could be constructed. There are, however, two other situations which must be considered.

7.2.3 First, the absorption of geography into interdisciplinary studies, to the exclusion of a unified study of the discipline conducted by geography specialists, while it may satisfy certain social and political convictions about the education of young adults, may raise an effective barrier to reconciling standards of achievement throughout the member states of the CCC. Two solutions to this difficulty seem to present themselves, the first of which is more convincing than the second.

a. It was suggested by the Federal German delegate that the introduction of a special geography option, side by side with "Gemeinschaftskunde", was still a possibility which could not be discounted. This would place geography as an option on an equal footing with other subjects, even though the number of potential choosers might be reduced by the presence of the interdisciplinary alternative. The benefits described in Section 7.2.2 above would immediately follow.

b. The geographical content of the interdisciplinary subject might be more specifically defined, in terms of skills and abilities and the inter-relationships among physical, human and regional geography, with a view to reducing the gap between students trained in interdisciplinary studies and those studying geography separately. The appropriate sections of Chapter 3 (and particularly Section 3.6.2 (c)) suggest that some degree of parallelism should not be ruled out.

TABLE 11

Estimated value of geography as:-

| Country | an academic subject | a socially useful subject |
|---|---|---|
| Austria | Average | High |
| Belgium | Average | Average |
| Cyprus | Low | Low |
| Denmark | Average | Average |
| Finland | Average | Average |
| France | Average | High |
| Iceland | Average | Average |
| Ireland | Average | High |
| Luxembourg | High | High |
| Netherlands | Average to low | High |
| Norway | High | Average |
| Switzerland | Low | Low |
| United Kingdom | Average | High |

7.2.4 Second, there is the group of countries in Southern Europe where geography as an advanced subject has little or no place in the curriculum. For these countries, there is no rapid administrative solution. To create a body of well-trained specialists - for a very large number of schools in some countries - capable of initiating and sustaining high-level courses where previously none existed is a long-term task, which must start in the universities and also be accompanied by an extensive programme of in-service training among the present teaching force. There are reports of encouraging developments, albeit on a small scale, from Italy and Spain. When the teachers begin to move into the schools in sufficient numbers, the next steps are to change the established curriculum pattern, to develop new geography syllabuses, and to provide adequate resources for teaching them. Assuming the will for change exists, and admitting the genius of the countries to implement reforms, there would still be a long road to travel before advanced geography courses suitable for the more academically able students could be universally established.

7.2.5 There are, then, two goals regarding the place of geography in the upper secondary school curriculum:

i. to ensure that geography is listed among the subjects available to academically able pupils;

ii. to create physical conditions, in which geography teachers can have a reasonable expectation of achieving certain basic targets in geographical education which are generally agreed to be appropriate to the age and ability of the students. The achievement of these goals rests on political and administrative decisions which lie outside the teaching profession, except to the extent that the combined views of teachers may carry weight with politicians and administrators. (In passing, it may be noted that protests by teachers against the abolition of geography as a separate upper school subject in Sweden and the Federal Republic of Germany have not, up to the present, changed the situation).

a. Broadly speaking, geography occupies a substantial place in the upper secondary school curriculum in nearly half of the member states. If these countries are added to those in which it is studied with a fair time allowance for one year only, the proportion goes up to about three-fifths. When asked whether the number of students choosing to take geography is tending to increase or decrease, six countries (Finland, Iceland, Ireland, Norway, Switzerland and the United Kingdom) reported a tendency to increase. Spain, with its plans for development, might be added to this group. No countries reported a tendency to decrease, but, in France, geography is likely to change from a compulsory to an optional subject which would automatically diminish the number of students. This is, however, a somewhat special context, being a move towards the trend described above in Section 7.2.2. Without some basic curriculum change, there is, therefore, a sizeable minority of countries in which the place of geography would need an upward revision to make possible some comparability with the majority.

b. Among the various factors which make up the total set of physical conditions under which geography is taught, a more general acceptance of the need for specialist geography rooms appears to be paramount. Most countries have a reasonably good supply of the commonest aids for teaching and learning, and it is mainly in provision for field-work and resources for dealing with some modern developments in geography which have been adopted by a limited number of countries up to the present, that wide differences between countries are revealed. To narrow down the differences would not strain

the financial resources of most countries. The most controversial factor concerns the amount of time available, and a fresh look at Table 6 and Diagram 9 focusses attention on the problem. The amount of time allotted to geography depends on the total number of subjects studied by each student and the length of the school year. Since neither of these can be internationally standardised, a range of differences must be expected in the total number of hours given to geography during the final two years. Assuming that a representative value lies somewhere between the Swiss and Netherlands allocations, and noting the fact that two of the countries in this band have a one-year course at present, a rough figure for a middle-of-the-road allocation might be in the order of 240 to 280 hours spread over two years for teaching and private study time. In most countries (ie those with a school year of 35 - 42 weeks), this would amount to between three and three-and-a-half hours a week. In some countries, teachers would have to manage with less time, and a few might have more. The question is - "What is the zone of tolerance within which teachers might have a reasonable chance of achieving some comparability of results?" There is no simple answer, but a satisfactory solution might be found in defining a core syllabus of knowledge and skills to which all countries subscribe, which can be treated with greater or lesser degrees of elaboration and with a differing number of examples or area studies, and to which each country might make additions to suit its special needs. To arrive at an agreed core syllabus would require an examination of aims and objectives.

Aims and objectives

7.3.1 The analysis of aims, objectives and syllabuses, as dealt with in Chapters 2 and 3, permits certain general statements to be made.

a. It is evident that, when objectives are spelt out in some detail and included in a questionnaire, a widespread measure of agreement can be discerned throughout most countries with respect to the purposes and contents of geography courses - the types of area studies, the topics from physical and human geography, the skills and abilities, and even the attitudes, which are to be promoted. There is, in fact, a large common denominator, which might form an important part of an agreed core syllabus. To confine a core syllabus to the lowest common denominator would be to invite stagnation. Some countries have moved farther than others in adopting elements of "new geography" in their teaching, and the injection of some well-tested new material into the common core would be valuable as a stimulus to teachers in general and as an enrichment of school geography, which should not be allowed to lose touch with university geography. Moreover, the agreed common core must be steadily adjusted to meet the changes taking place in the world and society, and some machinery would need to be set up for its periodic revision. Much of the material to be included in revisions would be culled from the parts of geography syllabuses which each individual country would follow as its own supplement to the common core. Thus the centre would be modified by validated inputs from the periphery.

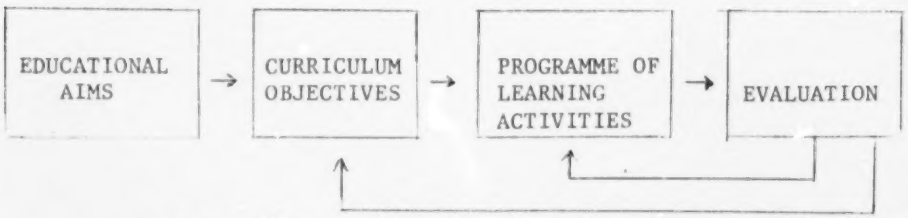
b. A rigorously organised analysis of objectives and a careful scrutiny of syllabuses reveal a greater accord in the general aims of geography teaching than the official statements of aims would suggest. A much more professional approach to syllabus-making is needed than has hitherto been current. Syllabuses should provide answers to three groups of questions:

i. What are the general educational aims of schools and society and in what ways can geography contribute towards fulfilling them?

ii. What are the processes and means to be employed; what are the most profitable ways of learning; to what areas of knowledge, skills and attitudes shall they be applied; and what kinds of progressive structures can be identified in geography to make the learning process more efficient?

iii. In what ways can the success of students be evaluated, and how can the results of the evaluation be fed back into the learning process to improve its quality? (Note that in this case evaluation is being considered solely as a formative activity with a creative function, namely to improve teaching and learning. This is quite different from summative evaluation, which has an analytical function, namely to select and grade the achievement levels of candidates in an examination.)

The relationships between the factors implied in the groups of questions have been expressed in the well-known model:




A core syllabus needs not only to define the large areas of agreement - particularly in answering in detail the group of questions in (ii) above - but also to reconcile certain differences which may occur in national conceptions of general educational aims. As was suggested in Chapter 3, a socially modified syllabus is not necessarily inferior to a comprehensively-based one, and the differences between the two are matters largely of emphasis. Partial syllabuses could certainly not be embraced in a common core, and fresh thinking directed towards enlarging the syllabuses would be needed in the countries concerned. Interdisciplinary syllabuses with their general statements of aims followed by lists of topics are notably lacking in a professional statement of learning objectives. In particular, the absence of structure and of defined behavioural objectives with respect to skills and abilities, renders them especially vulnerable to criticism. If they are to be harmonised with geography syllabuses, their geographical objectives need to be declared in convincing detail. They would in no sense be inimical to the pursuit of individual and social aims, as can be seen from a study of some geography syllabuses with similar aims. Finally, the results of formative evaluation carried out by one country should be shared with other countries so that improvements in methods and structure can proceed at an even pace.

7.4.1 Assessment: There is little more to be said under this heading. Unfortunately, only five countries submitted examples of examination questions - Belgium, Ireland, the Netherlands, Switzerland and the United Kingdom. They provided no hard evidence of the standards required of candidates. The questions set in Switzerland seemed to be much more elementary than those in the other four countries but there was no means of estimating the standards applied for awarding marks. In this field an interchange of information and ideas would be valuable.

7.5.1 It is not difficult to envisage a fairly rapid advance towards an acceptable degree of harmonisation in advanced geography teaching in schools among a group of about half the member states of the Council of Europe. They are the countries in which the subject is respected for its academic worth and social applications, having a good supply of geography specialist teachers, a reasonable time allowance, and reasonably good teaching resources. They also have comprehensively-based or socially modified syllabuses. To them might be added a few countries in which some improvements in the place of geography in the curriculum could be effected within a few years without any great upheaval. But, there is another group of countries in which a fundamental change of attitude towards the subject would be required before the extensive changes could be contemplated which are necessary to place them on terms approaching equality with the rest.

APPENDIX A

Recommendations of the meeting of geography experts

Strasbourg, 7 - 10 December 1971

The meeting of geography experts believes:

1. that the detailed analysis of reality in the local area should be the starting point for geographical studies;

2. that an understanding of basic geographical principles, of permanent features and of the dynamic factors - the nature, mechanisms and causes of change - are essential to a geographical education;

3. that any attempt at an exhaustive coverage (country by country) should be abandoned. Instead, areal examples from a wide variety of environments should be chosen to illustrate underlying principles;

4. that, although geographers should be encouraged to co-operate on an equal basis with other subject specialists in interdisciplinary enquiry, geography must still be maintained as a separate school subject and with no dilution whatever, up to the end of secondary education;

5. that the teaching of geography should exhibit a reasonable balance between the study of physical and human phenomena;

6. that the environment is the workshop of the geographer, and any attempt to separate off environmental studies as a separate discipline is unnecessary;

7. that field-work is an essential part of a geographical training, and that schools should make available time and money for this activity. Administrative difficulties including problems of insurance should be removed;

8. that a heavy emphasis should be placed on the teaching of geographical skills and techniques;

9. that facilities for geography teaching need considerable improvement. Purpose-built rooms and resource centres with specialist staff, providing audio-visual aids and documentation services, should be made available for every school: we recall the strong recommendation to this effect made by the Council of Europe Symposium on school building at Ottenstein (Austria) in 1968 and Leiden (Netherlands) in 1969;

10. that improvements in geography in schools depend on adequate preparation in teacher training both initial and permanent, and in universities;

11. that where possible, the teaching of geography in schools should be entrusted to teachers with a specialised training in geography;

12. that the recommendation made at the Reykjavik Conference in 1964 that centres on information and documentation should be set up in each country for the exchange of up-to-date information, and which has resulted in positive action in the Netherlands and Sweden, should be implemented in all member states.

APPENDIX B

Delegates to the Strasbourg Conference, December 1971:

| | |
|---|---|
| Austria: | Dr. H Hasenmayer<br>Director, Bundesrealgymnasium, Vienna |
| Belgium: | Dr. J Vereerstraeten<br>Inspecteur de l'Enseignement, Brussels |
| Cyprus: | Professor F Maratheftis<br>Pedagogic Academy, Nicosia |
| Denmark: | Mr R Frederiksen<br>Director of Upper Secondary Education, Copenhagen |
| Finland: | Mr M Castren<br>Senior Master, Sepontie, Tapiola |
| France: | Mme J Geoffroy<br>Directrice d'Etudes au Centre de formation des PEGG à Strasbourg |
| Federal Republic of Germany: | Dr. G Fischer<br>Oberschulrat, Hanover |
| Greece: | Mrs M Moisidou<br>Athens |
| Ireland: | Mr M Breathnach<br>Inspector of Secondary Schools, Dublin |
| Italy: | Professor R Bernadi<br>Ispettore Centrale del Ministero della Pubblica Istruzione |
| Netherlands: | Mr G B W Huizinga<br>Inspector of Education, Ommen |
| Norway: | Mr R Aalen<br>Oslo |
| Spain: | Professor D I Gonzalez Gallego<br>Instituto Ensenanza Media de Tordesillas, (Valladolid) |
| Sweden: | Mr G Wennberg<br>Lecturer, Teacher Training College, Uppsala |
| Switzerland: | Dr. R Martin<br>President of the Swiss Association of Teachers of Geography, Lucerne |

| | |
|---|---|
| Turkey: | ..r S Öngör, Ankara |
| United Kingdom: | Mr J W Morris, HMI<br>Staff Inspector for Geography, London |

Correspondence received in 1974 from:

| | |
|---|---|
| Iceland | Mr Birgir Thorlacius,<br>Secretary General,<br>Ministry of Culture and Education,<br>Reykjavik |
| Finland | Mr Toivo Havula |
| Luxembourg | Ministère de l'Education Nationale |
| Norway | Mr Guttorm Grønningsaeter<br>Royal Ministry of Church and Education,<br>Oslo |

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111

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